Smithsonian

March 1986

A blaze of Boucher visits New York City. Here, a detail from mythological subject (p. 98)

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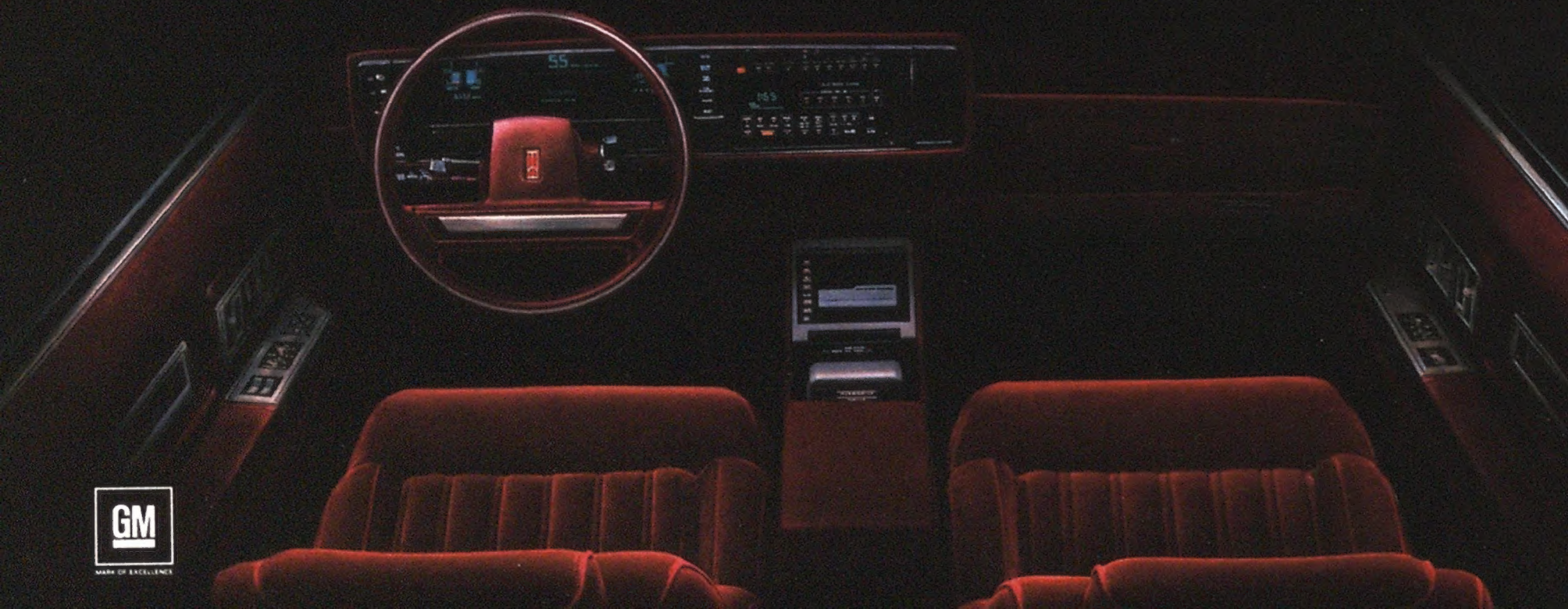

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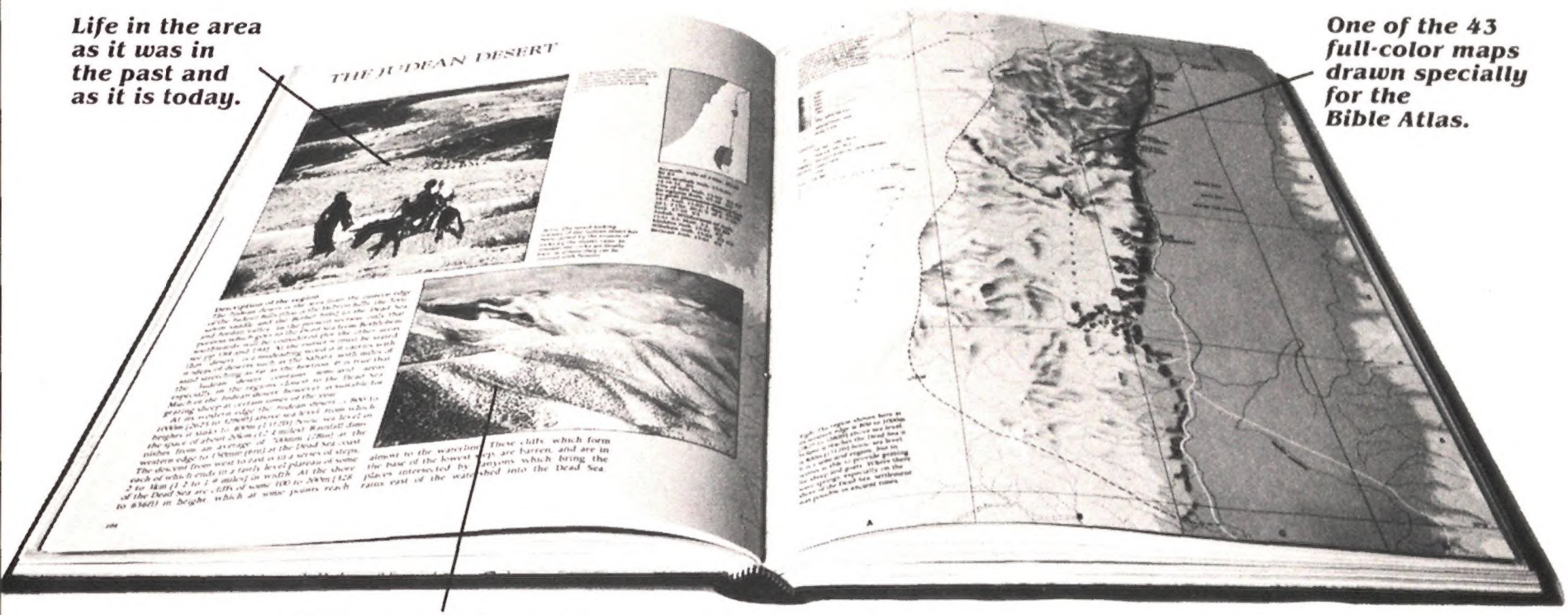
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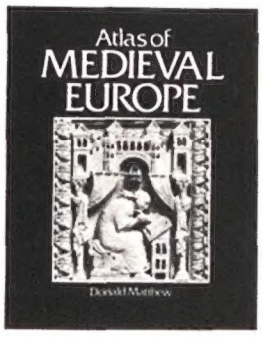
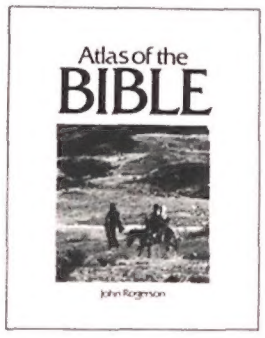
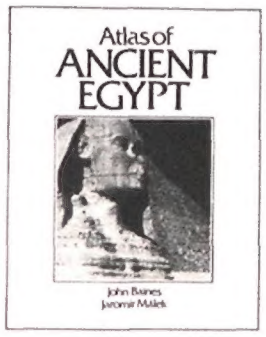


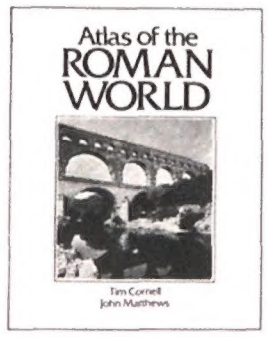
7344. **Medieval Europe**
by D. Matthew



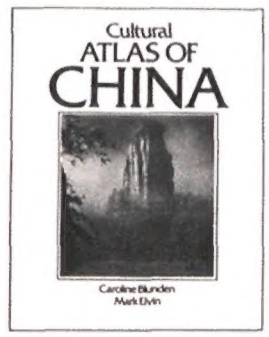
2618. **The Bible**
by J. Rogerson



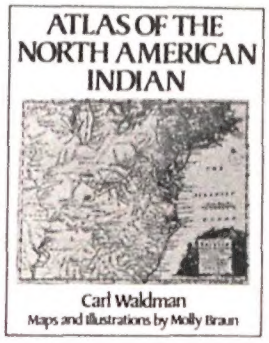
7609. **Ancient Egypt**
by J. Baines / J. Malek



4929. **Roman World**
by T. Cornell / J. Mathews



7369. **China**
by C. Blunden / M. Elvin



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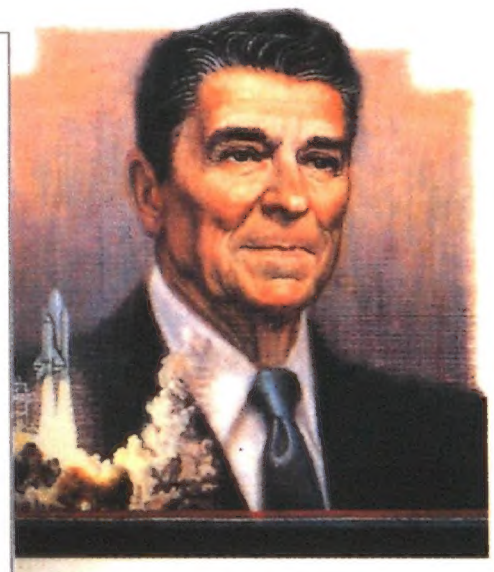

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March 1986

Smithsonian

Volume 16, Number 12

Table of Contents

Cover: This is a detail from the painting shown in full on page 109, a late masterpiece by Boucher (p. 98) Kimbell Art Museum, Fort Worth

12 *Smithsonian horizons* by Secretary Adams
16 *Letters to the Editor*
26 *Around the Mall and beyond* by Edwards Park
32 *Phenomena, comment and notes* by John P. Wiley jr.

40 **'Polar Bear Capital of the World'**
It is Churchill, Manitoba, where the lords of the Arctic are tolerant of human intrusion
By John P. Wiley jr., photographs by Dan Guravich

54 **How is the Alamo remembered?**
Differently—as the author discovered when he tried to do an accurate painting of the battle
By Eric von Schmidt

72 **Flying as they did 65 million years ago**
A battery-powered pterosaur replica, created in California, actually flies by flapping its wings
By Michael Parrish
Color photographs by James Collison

84 **'The ugliest building in America'**
So Mark Twain described the Old Executive Office Building; today, restored, it is seen as a treasure
By Richard Oulahan
Color photographs by Walter Smalling jr.

98 **The delights of a doomed society**
Before the French Revolution, Boucher painted exquisitely the heedless pleasures of aristocrats
By Dan Hofstadter

112 **Making faces just comes naturally**
It's the expression that conveys the message, which infants can understand long before language
By Jeanne McDermott

126 **The offspring of the tourist cabin**
That was the motel, America's favorite home away from home, until the chains took over
By Phil Patton

140 **Who was the lady of Vix?**
We'll never know, but her grave—discovered by a French schoolteacher—sheds light on antiquity
By Robert Wernick, photographs by Pierre Boulat

164 **When propaganda was *Spreading Manure***
Working for director John Ford in World War II, a young filmmaker received a valuable education
By Robert Parrish

170 *Points of origin* by Michael Olmert
174 *Book reviews*
181 *Additional reading*
183 *March events at the Smithsonian*
188 *Smithsonian tours*

190 **A few words for Brontosaurus**
By James Trefil

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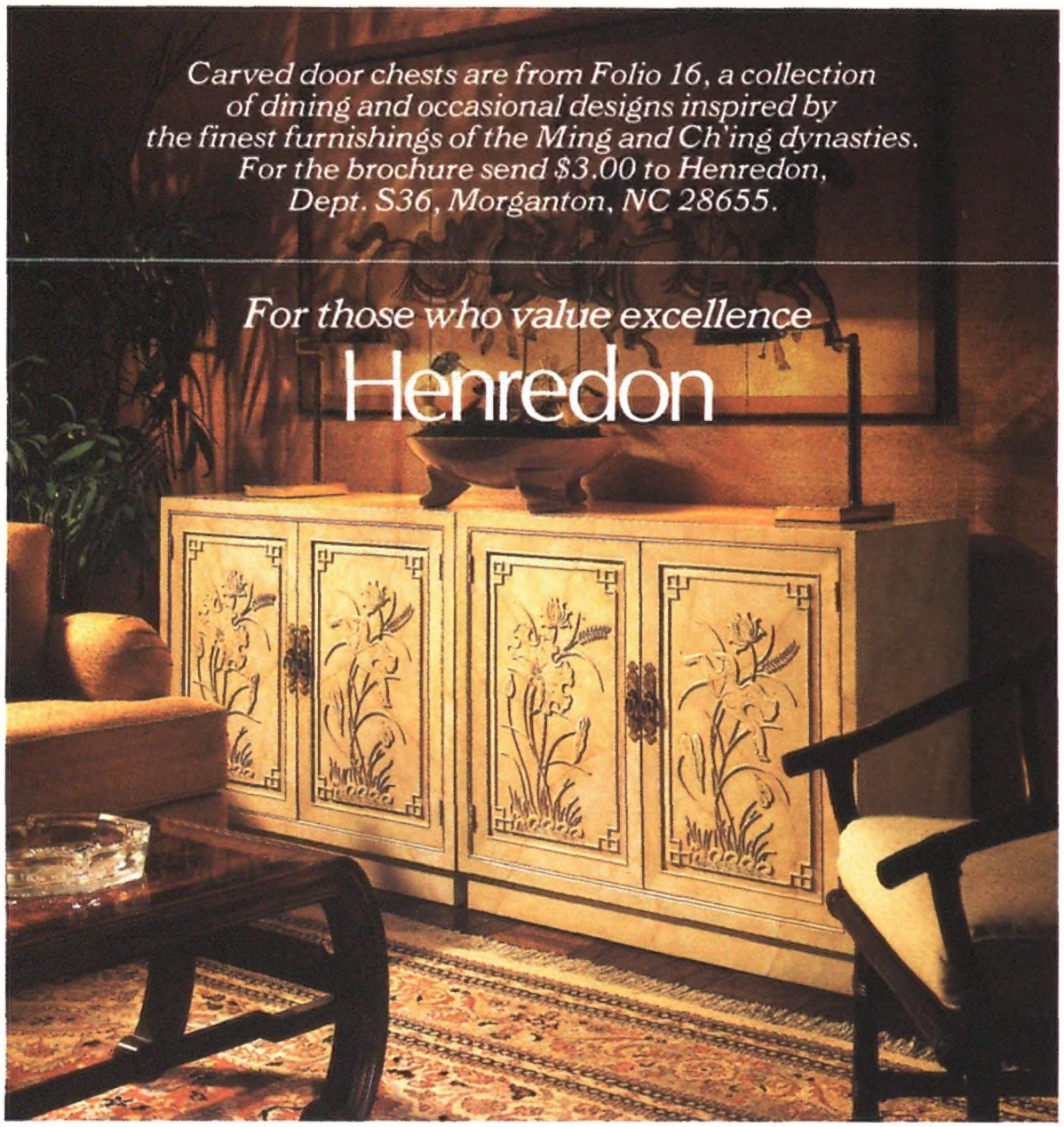
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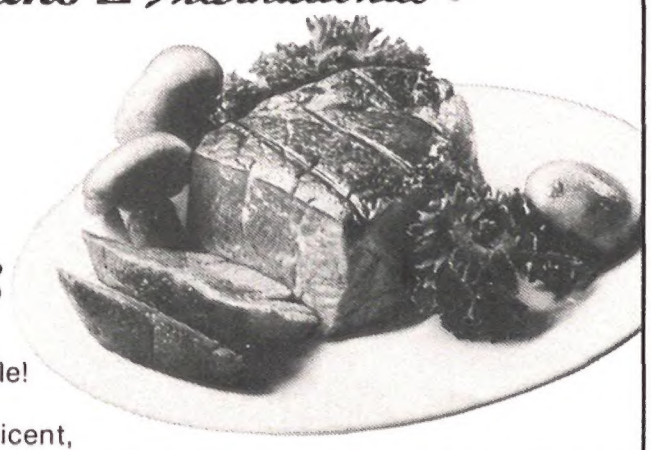

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Secretary Adams' comments

Smithsonian horizons

The Chinese porcelain trade proves how old are concepts of supply and demand, stimulus and response

It is commonly assumed that worldwide technology rivalries and the interdependence of trade are a modern development. This view was challenged at a conference I attended at the University of Chicago last October on a seemingly unrelated theme: Chinese blue-and-white porcelain and its Middle Eastern, Japanese, European and New World derivatives.

The esthetic and technological sides of the proceedings have an appeal of their own for collectors and specialists. Those interested may wish to contact John Carswell at the David and Alfred Smart Gallery there for the comprehensive catalog. But the relevance to international economic history of much that was said makes it of interest to a wider audience.

Blue-and-white was traded southward and then westward late in the 14th century (not long after it was first introduced), although by that time other Chinese export wares were centuries old. They had long moved in both directions between China and the Islamic world (and its antecedents), partly along the ancient silk road through central Asia, but preponderantly in the cargoes of Arab and Persian seafarers. Indirect though it was, this distribution system efficiently communicated back to the Chinese information on the tastes of their Muslim customers.

Meantime, there also developed in the Middle East a wave of cheaper local copies. When they began appealing to customers in their own right, these products no longer needed to be so strictly imitative.

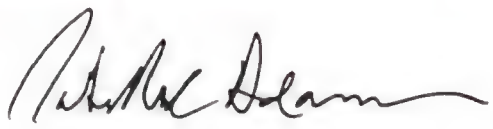
Soon the West got into the act. After a resolute process of exploration at least as consequential in the eyes of contemporaries as the voyages of Columbus, the Portuguese finally rounded the Cape of Good Hope late in the 15th century, opening the Orient to sea trade. Quantities of blue-and-white were being shipped to Lisbon as early as 1530, becoming no less prized in European markets than they were elsewhere.

Once again the Chinese producers were quickly responsive to the changing demands, helped along in this case by painted wooden models that the Dutch sent along with their huge orders.

The Japanese part in all this is equally fascinating. Their taste for blue-and-white did not develop until they had begun to master the technology themselves, which they succeeded in doing about 1600. Not long afterward they made their own entry into world markets. Splendid Dutch records tell a story of massive shipments of Chinese blue-and-white into Japan at first, followed by a Japanese invasion of Southeast Asian and European markets when Chinese production was temporarily interrupted by a civil war. Only in the later part of the 17th century did the Chinese reemerge as competitors. By then the producers of Japanese Imari wares, originally crude and derivative, had developed their own vigorous, indigenous styles for which there was a secure niche in the upper tiers of European and Middle Eastern markets.

Then there is a New World element. Spain came comparatively late to the Pacific by way of the Philippines. Annual shipments of Mexican silver from Acapulco quickly followed, eventually reaching China in quantities sufficient to drive out Manchu paper currency and greatly disrupt the internal economy. The return trade was in silks—and, of course, blue-and-white. Dispersed across Mexico, pieces found their way even to the rude northern frontiers of New Spain. Sherds still turn up from time to time in historic Indian villages along the upper Rio Grande, just as they do more frequently along the Arabian coasts.

There is more to the story than I can tell here. Initially imitative industries sprang up in northwestern Europe, in Italy, even in Mexico. Out of these, in time, came the splendid tradition of Delftwares and the English porcelains that still grace our tables. But what is most interesting is the antiquity as well as the worldwide range of the shifting patterns of supply and demand, stimulus and response. An ebb and flow of technological and trading leadership long antedates the modern era.



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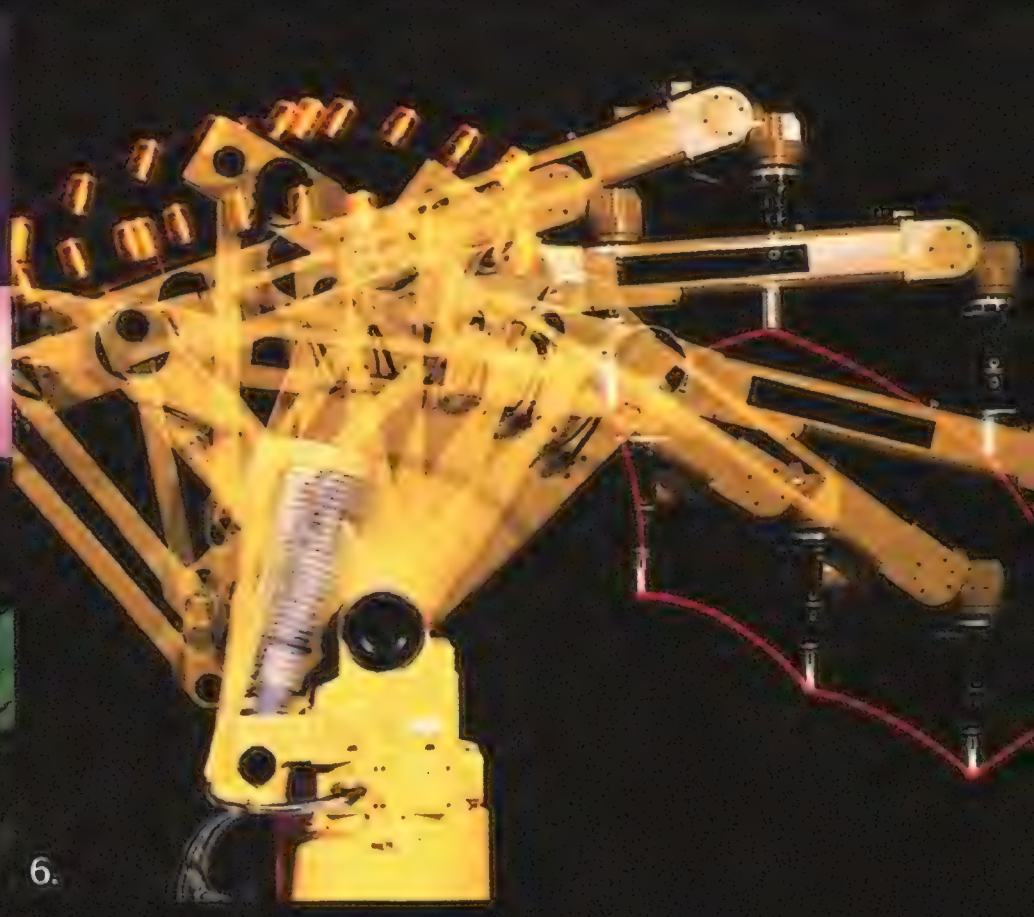

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Letters to the Editor

Kipling

Dear Sir: Timothy Foote's January article sparked memories of years ago, when I devoured everything I could get my hands on that bore Kipling's name. He was a real hero to soldiers, a man of vision whose views on international affairs, had they been heeded, might have saved the world untold tragedy.

The crux of his philosophy seems to me to be embodied in these lines from *The Naulahka*, a story of West and East, written in collaboration with Wolcott Balestier: "Now it is not good for the Christian's health to hustle the Aryan brown,/For the Christian riles and the Aryan smiles and he weareth the Christian down;/And the end of the fight is a tombstone white with the name of the late deceased,/And the epitaph drear, 'A fool lies here who tried to hustle the East.' "

These words rang clear and true when our departure from Vietnam became a reality. We suffered because the lessons of history were not learned.

Henry E. Johnson
McLean, Virginia

Dear Sir: You did not mention *The Kipling Journal*, published by the Kipling Society, a far-flung organization based in London. Its articles deal with such things as Kipling's motoring diaries and Kipling on baldness. The March 1985 issue carried a remarkable account of the reportorial background to Kipling's poem "Ford O' Kabul River," which involved the second Afghan War in 1879 and the drowning of 47 British Hussars during a night crossing of the Kabul River. That is where the Russians have been fighting the past six years.

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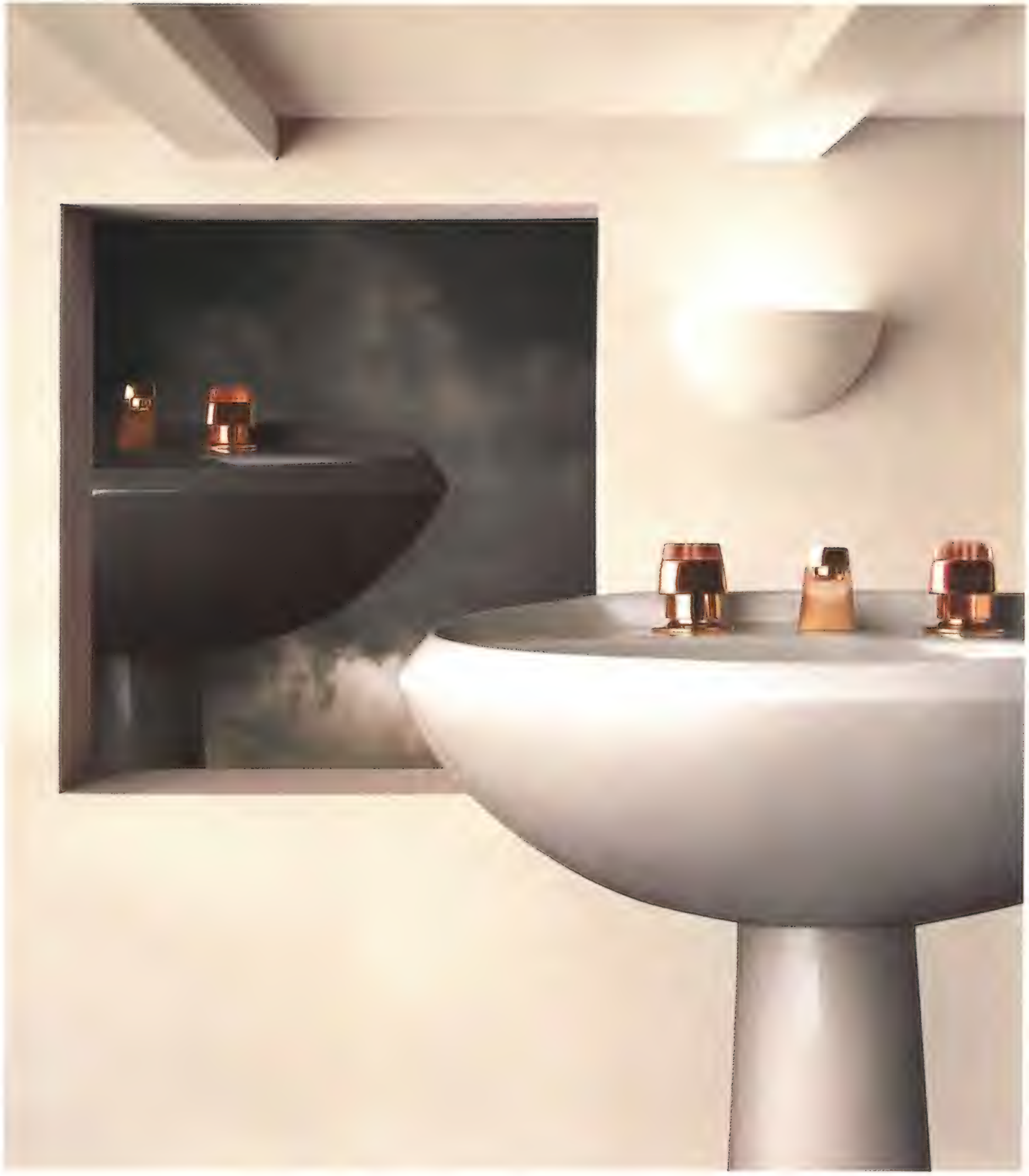

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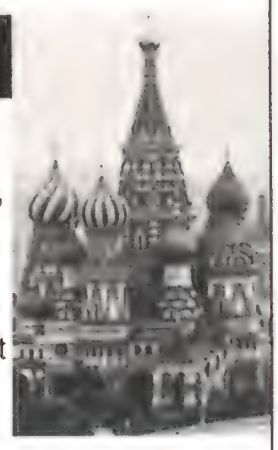

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The Automat

Dear Sir: In your litany of Automat-inspired tunes, you forgot P.D.Q. Bach's "Concerto for Horn and Hardart (Schickele 27)."
T.E. Zmudzinski
Oxon Hill, Maryland

Dear Sir: My father, Joseph Friedman, owned and operated the City Hall Theatre, located on Park Row opposite City Hall in New York City. He was approached by some people from Philadelphia, who wanted to rent his basement and sub-basement for the first Horn & Hardart operation in New York City. My skeptical father went to Philadelphia to see what the operation was like.

He approved, and the Automat remained at that location for many years.
Sayde Goodstein
Forest Hills, New York

Dear Sir: To a young man growing up in New York, the Automats were as familiar as candy stores and vaudeville theatres. As a student at New York University in Washington Square, my regular eating place was the one on nearby Broadway. There was a hot cereal called Wheatsworth, served with pure sweet cream. And the coffee! It deserves a doctoral thesis, with a flavor and aroma never recaptured. Should its secret ever be rediscovered it would earn someone a fortune.

Then there were the pies. For me it was the blueberry, full of delicious fruit in a runny state surrounded by crisp biscuit dough. No one's mother ever equaled it.

What is generally forgotten in the nostalgia for the low prices was the quality of the food, which never varied from Automat to Automat. A poor man could eat better than well, and during the Depression what a blessing!
Abram Lerner
Southampton, New York

Dear Sir: Having grown up in Manhattan, I learned that each Automat had its own personality. I recall especially the one on West 42nd Street, where the horseplayers sat around tables for hours with holes in their shoes, one cup of coffee and the *Racing Form.* It was a better show than the movies as they shouted their favorites at Belmont or Aqueduct, hoping Lady Luck would strike. Day after day they were back, hopes undimmed.

A bit of New York's spirit left us when those little doors passed into history.
Father John Cavanaugh
Linwood, New Jersey

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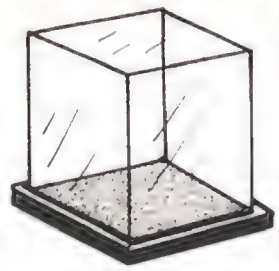

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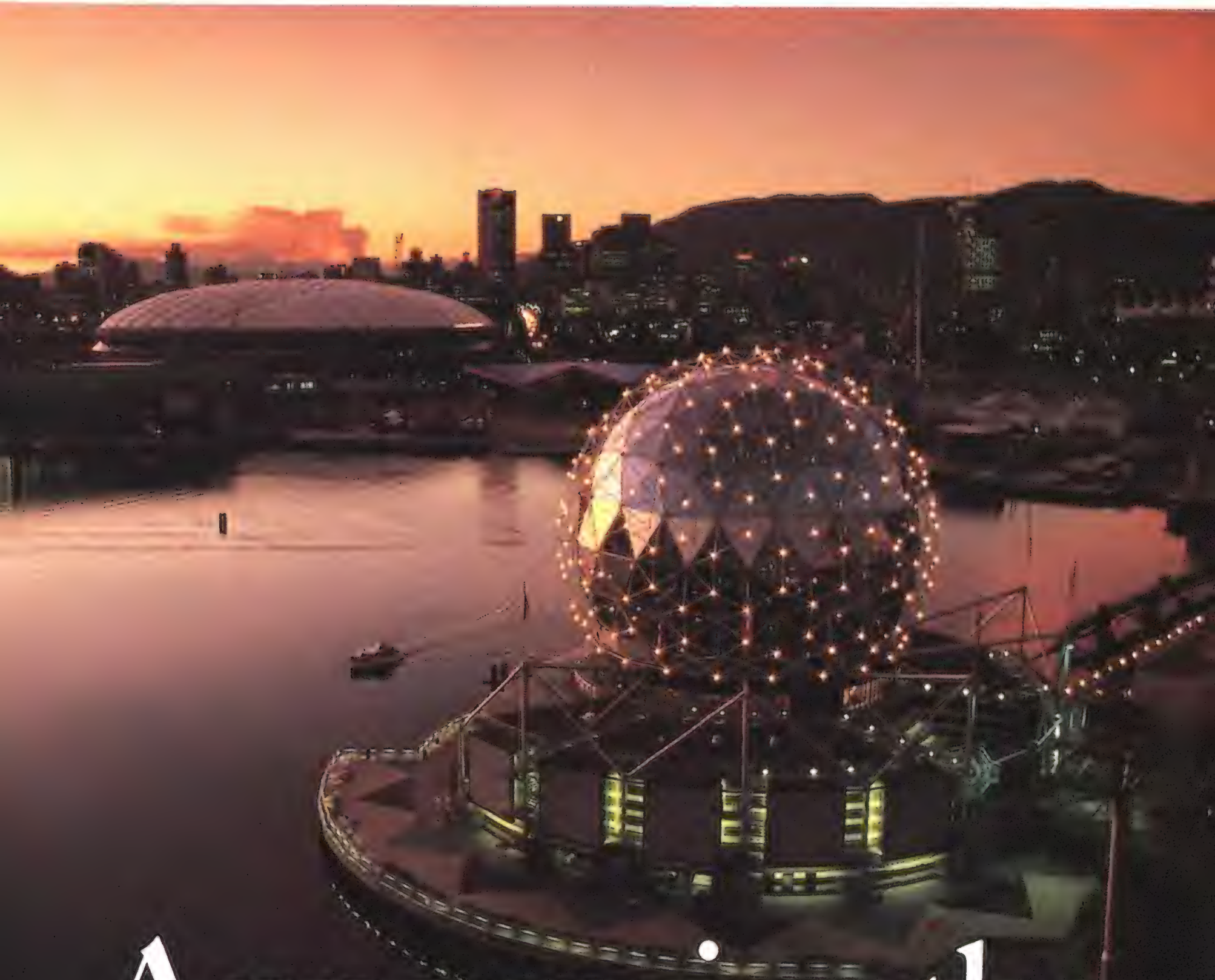

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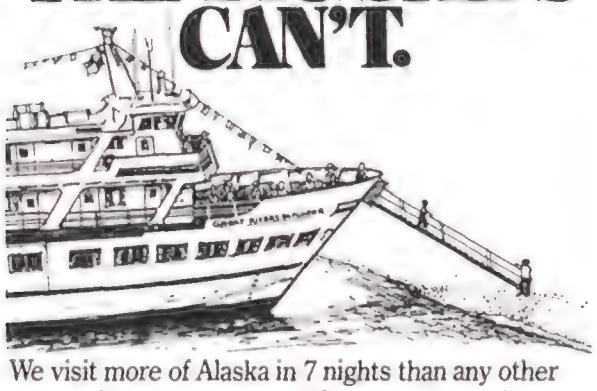

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Dear Sir: Ah! Your article took me back only 70 years, to the days when I would drive my father's solid-tired Denby truck from Reading to Philadelphia, 45 miles over dirt roads. Between unloading and reloading I would head for the Automat. First to the cashier, who could give you change in nickels—exactly two to 20 with no mistakes—faster than a bank teller today can give you change from an automatic change machine. I would head for the baked beans, feast on one or two crocks, then a slice or two of pie with a most delicious hot chocolate.

On the return trip I would encounter another institution on the streets of Pottstown: a man with a three-tier pushcart. It was a Mr. Smith, selling his wife's pies. This industrious pair developed Mrs. Smith's Pies, which are now sold in supermarkets from coast to coast.

As the Automat's baked beans tasted like Grandma's, so did Mrs. Smith's pies.
Paul F. Knoll
Reading, Pennsylvania

Dear Sir: . . . and let us not forget Cornell Woolrich's whodunit, *Murder at the Automat.* The victim was slipped a cyanide-laced bologna sandwich when dining there.
Terry Bingham
Fairhaven, Massachusetts

Bloodhounds

Dear Sir: About ten years ago I was invited to dine at the home of a man who bred bloodhounds. As soon as I arrived I was outfitted with a raincoat, buttoned from the neck down, and two of the dogs bounded up the basement steps to greet me. The animals commenced licking me from head to toe, slurping off every bit of makeup. Then they sat pensively, with cocked heads, staring at me. My host assured me that they liked me.

It was an unusual experience.
Evelyn C. Smith
New York City

Hundertwasser's house

Dear Sir: Surely Hundertwasser has visited Barcelona, where he could not have failed to see the work of Antonio Gaudí, a contemporary of the Viennese artists Hundertwasser most admires. Many of them knew and admired the work of this highly original Catalan artist and architect, who died in 1926. Hundertwasser's work is reminiscent of Gaudí's Park Güell, with its undulating walkways, irregularly shaped

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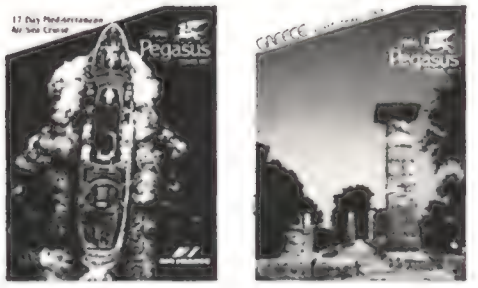

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columns and serpentine bench inlaid with broken crockery and tiles. Here too, workmen were inspired by the master and encouraged to work freely with the materials provided them. Gaudí's buildings, scattered throughout Barcelona, are colorful edifices with rounded corners, irregularly shaped rooms, meandering corridors, fanciful turreted roofs—all the elements your writer admires in Hundertwasser's remarkable apartment house.

Barbara Levine
Providence, Rhode Island

Icelandic sagas

Dear Sir: These sagas not only document the history of Iceland, but also have proved to be a most unusual source of oceanographic data.

Professor Unnsteinn Stefánsson, in his book *North Icelandic Waters*, refers to the settlers' early dependence on water currents around the island. It seems that when the first inhabitant, Ingólfur Arnarson, approached Iceland in the ninth century he threw an *öndvegissúlur* (a carved post set beside the chief's high seat) overboard with the intention of establishing himself whenever it beached. The post was recovered, after some searching, at Reykjavik. According to Stefánsson, this method of selecting sites along the south and west coasts through the use of what he calls the "drift bottles" of their day, continued and is well-documented in the sagas.

Larry P. Atkinson
Norfolk, Virginia

Obesity

Dear Sir: The people in Overeaters Anonymous mentioned in your article do not sound at all like those I know, who work successfully in that program and do not constantly think about food; just the reverse. They can finally live their lives free of those compulsive thoughts and actions. And not one of them looks even remotely anorexic.

Susan King
San Rafael, California

Dear Sir: Your article is the best "Happy New Year" an obese person could receive.

In an effort to maintain a sense of self-worth and a proper perspective in a thin-thinking world, I tell myself God made me fat to keep me humble. Otherwise, I would be perfect.

Dee Wolfenbarger
Brownsville, Texas

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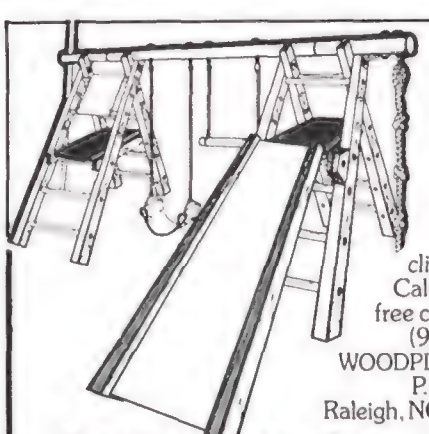

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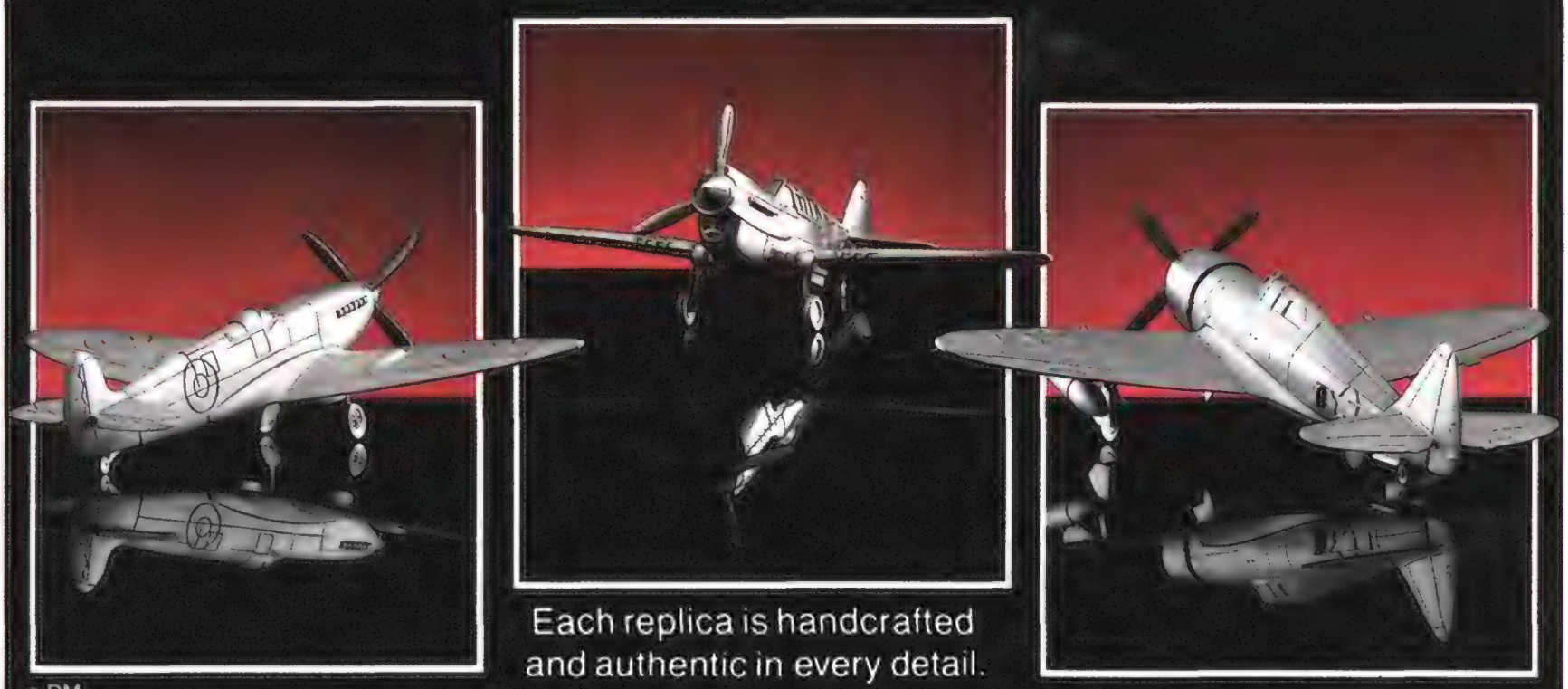
The Great Fighter Planes of World War II

Curtiss Warhawk (U.S.A.)
Shown actual size

Supermarine Spitfire (Great Britain)
Shown actual size.



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Around the Mall and beyond

People are always saying, "Someday I'm going to spend a lot of time at the Smithsonian—maybe three or four hours—and really get to see everything!" It's a tourist's dream, and when staff people hear it they can only wince a little and smile bravely. But on Sunday evening March 23, millions of people will learn a great deal about the Smithsonian in only 90 minutes.

On TV, *American Treasure—A Smithsonian Journey* will be broadcast nationwide and we hope it will glue you to your upholstery. To an extraordinary extent, it manages to synthesize the essential gut feelings of our sprawling, bewildering, complex and much-loved Institution. Only television could skip so fast from museum to museum, from butterflies to the Wright Flyer, from Lincoln's Inaugural to Lincoln's invention (for moving boats over shoals), from Winslow Homer's art to Joe DiMaggio's homers. Only a sobering amount of skill could have made sense out of what host Gene Kelly describes as "an extraordinary jumble of riches."

Yes, Gene Kelly—actor, singer, dancer and choreographer. He played in films about the Navy and about show biz. He was the sailor who could dance. He was the hoofer who seldom got the girl, except sometimes. His was the husky tenor that sang in the rain, that harmonized gently and unforgettably with Judy Garland. He was the ultimate trouper. It was no act. He really was just that. Now he's host of this blockbuster show. How did it happen?

A couple of years ago, Chic Cherkezian, director of the Smithsonian's Office of Telecommunications, was brainstorming with his associate, Karen Loveland, director of special projects for the same office. It was a very high-level conference: they'd both won Emmys for previous programs. Now they were putting together thoughts on a ten-minute short and half-hour documentary on American picture palaces, the incredibly opulent old pleasure domes of filmdom's golden age, and they needed a narrator. "You know," said Chic, "the ideal guy would be Gene Kelly." They both knew he was right and took the long shot.

It was down Kelly's alley. He joined the Smithsonian team and worked with Chic, Karen and Academy Award-winning photographer John Hiller with remarkable smoothness and total lack of film-star temperament. "It was one of the best filming experiences I've ever had," says Karen, producer of the film, "not only because of his charisma and the honor of working with him, but also because he knew those great old theaters, and his reminiscences were important and got into the script."

"A gracious professional," Chic says of Kelly. "The sort of star who hurries past you, his mind on other things, then stops and returns in order to speak courteously to you. A very big man."

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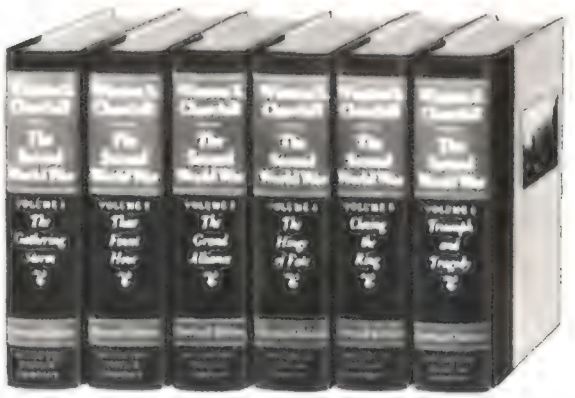

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The picture palaces short has premiered and is now being shown around the country. A half-hour version is ready to air on public television. And Gene Kelly so endeared himself that when *American Treasure—A Smithsonian Journey* was planned, executive producer Martin Sandler and sponsor Wang Laboratories were delighted with the idea of Kelly as host.

For a week last fall, Kelly was in Washington for the filming. Shortly after the New Year I had a chance to call on him at his home in Beverly Hills to ask the usual dumb journalistic questions: How did you like the Smithsonian, Mr. Kelly? That sort of thing. I figured out Beverly Hills traffic, found the house, rang the bell, was let in and heard a familiar tenor call out from a back room that he'd be with me in a minute. And so he was.

He wore a pair of khakis and a loose, pullover shirt. He also wears spectacles and he's lost a bit of hair. So have I, and he's a few years older. He's firm and fit, about my height, and stands with the unconscious grace of an athlete. That's what got us started, for I had always thought he danced with the driving vigor of a running back hitting off-tackle for a first down. I asked if he'd done sports as a kid.

"Everything," he said. We sat together on a broad, deeply comfortable sofa, looking toward a very clean Southern California fireplace and thinking about the past.

"Running back?"

"Yes. And end. Also baseball. Even your Maryland game, lacrosse. But mostly ice hockey and gymnastics."

Gymnastics. That figured. I remembered his dancing, the speed and controlled agility, the sense that he was sometimes reaching toward flight. Gymnastics—kips, back flips, spinning somersaults—would give a man that dash.

The Kellys lived in Pittsburgh, and the children, three boys and two girls, all worked at various jobs.Their father coached the boys in ice hockey, but, says Gene, "We had to learn something else, too. A piece of culture. Mother drilled it into our heads—mothers did that back then. So one of my brothers and I learned dancing, and when I was 16 we danced professionally. We played the little dives, the speakeasies, and got five dollars a night—for both of us. Then there were the amateur nights. The Depression had a lot of amateur nights, and we'd get into them if we could."

In 1927, when Gene was in high school, he came to Washington to see a friend and they visited the Smithsonian. Three

Gene Kelly, in action at American History, talks about 1922 glass-gauge gas pump.

buildings: the castle, the Arts and Industries Building or "U.S. National Museum," and the Natural History Museum.

In 1929 he entered Penn State as a freshman. He majored in journalism and worked his way with construction jobs and as a soda jerk, but he couldn't stay. "You remember 1929?" He looked over at me. "Stock market. I left Penn State and went to Pitt so I could live at home and save money. Of course I had to work my way there, too."

With one of his brothers, he ran a dancing school. He was developing the Kelly style which, after college and a month at law school, he eventually brought to New York. When he talks about dancing, now, the words come fast. I knew I was tapping a deep well. "It was all ballroom dancing, back then. White tie and tails. The Castles. Fred and Adele Astaire. I wondered about the people in Pittsburgh, the working guys like me. Couldn't this art form reach out to us, too? I felt men dancers were usually too . . . too *soft* in their upper body movements. That was because they were taught by women. I felt that there was a strong link between ballet and gymnastics, and I tried to strengthen it. I added a sort of athleticism to male dancing."

When he started acting in Hollywood (and choreographing his own dances), he sought working-class roles. In the Navy films he was always the swabbie, never the ensign. He laughed when I pointed that out. "The sailor's uniform was great to dance in," he said. "It showed off the line of the body as you moved."

In World War II he joined the Navy, feeling more at home there after films like *On the Town*. He was just a swabbie, playing the role he knew and enjoying it. Then someone reread the personnel records and sent for Kelly. "Kelly, you know the film business. You gonna run a photo crew."

"But I've never taken a picture in my life," said Gene.

He was given eight men to supervise. He studied hard and began to teach them —and himself—photography. One day while they were practicing, there was a peremptory bellow: "Kelly!" He trotted over to the officer and came to attention.

"You gonna be an officer."

"I'm not officer material," said Kelly.

"You got eight men under you. You gotta be an officer. Follow me."

Kelly did, and returned to his men ten minutes later in the uniform of an officer. "Not an ensign," he said. "They jumped me to a lieutenant junior grade. So much for the common man."

Kelly said that during his week at the Smithsonian he found certain things that touched and stirred him, and that he sometimes stopped work and talked about them. The show's producer and director, Christopher Sarson, a skilled Englishman, famed here for his work on *Masterpiece Theatre*, would let Kelly reminisce and sometimes use a little of what he said, just as Chic and Karen had done.

"I loved seeing the 1920s gas pump with the glass reservoir," Kelly told me. "You filled the reservoir then dumped the exact measurement of gas into the car. I know. I worked at a filling station back then. Gas was 25 cents a gallon, just as it says on the Smithsonian pump.

"And at the Air and Space Museum," he said, "no American could look up at the Wright plane, and right next to it that space capsule that went around the moon, and not get a prickle. I know I did."

Gene Kelly walked with me to my car. I'd been determined to ask him to show me a dance step, but I didn't. You don't feel like playing the fool with a man who so unpretentiously offers you his friendship. We talked a little, out beside my rented car, and I noticed his right foot—a million-dollar foot, I suppose—swing slightly to the right and tap the sidewalk twice, then swing to the left and tap twice more.

Back at my hotel I tried it.

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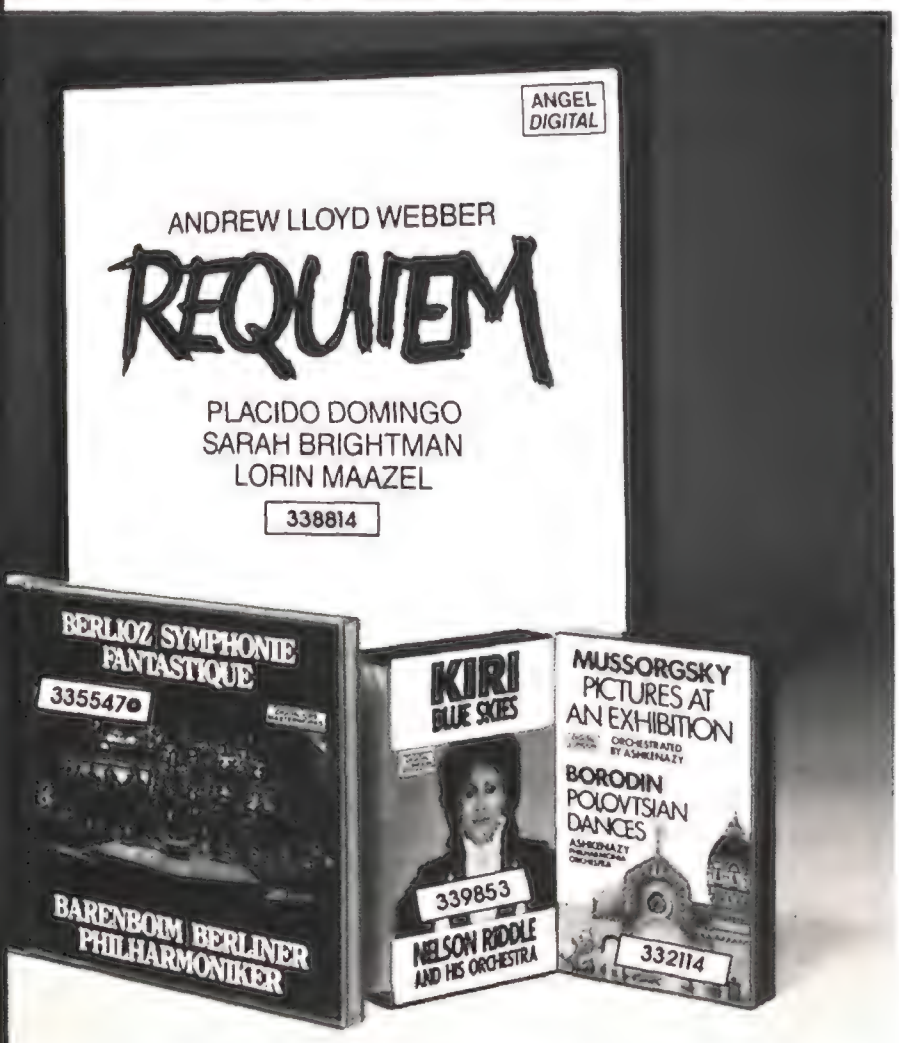

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Phenomena, comment and notes

An apparently stable ecosystem may require disturbances, some small as an ant mound, to keep it that way

As a sometime weekend naturalist, I like to get out into nature whenever I can. Yet, for someone living in the East, nature is almost never natural. It is unlikely that I have ever walked on ground that has never been plowed or through a forest that has never been cut. Mammalian food webs have been amputated at the top: cougars and wolves are long gone. Really big trees are as rare as big animals: there are precious few places to see the mature forest the colonists saw.

Instead we have the intermediate stages of a forest that has been disturbed, what biologists call the stages of succession. Species succeed species as the disturbance fades into history. The hand of Man is visible everywhere. Bits of rusted barbed wire and the remains of old stone walls materialize in the middle of a seemingly pristine wood. Odd bits of engineering—an old culvert, the piers of an abandoned bridge—appear. One pushes off well-worn paths, only to find more beer cans, bathed in the acoustic waves of jets climbing away from the airport.

Disruption is the norm. Where to find nature undisturbed? The question, I'm only just now finding out, is naive. The natural world is constantly being disturbed. From the fall of a single tree to devastation by hurricane or forest fire, that world is changing all the time. What I had not understood is that the natural world does not recover from such disturbances the way a body heals from a wound; ecosystems depend on disturbances, indeed could not live without them.

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misread the title. It is *The Ecology of Natural Disturbance and Patch Dynamics*, edited by S.T.A. Pickett of Rutgers University and P.S. White of Great Smoky Mountains National Park. I had overlooked the word "natural" in the title and thought the book would be about the cutover forests and plowed fields where I spend my time. But the papers in this collection are indeed about natural disturbances, and for me they opened up a new understanding.

The central idea is that a seemingly homogeneous habitat, a particular section of forest or grassland, is really a shifting mosaic of patches, sometimes very small fractions of the total, where a disturbance of some kind has created a difference. The concept arose at least 50 years ago, in studies of tropical forests. When a tree falls, it creates a gap in the canopy. The gap creates a patch, a small area where the environment is different from the surrounding forest. The obvious difference is more light. Tree species that could not grow, from seed or sapling, in the subdued light now have a chance. These species are an integral part of the community, may even be a major component, yet can only take their place when disturbance makes it possible. A tropical forest is a dynamic system of such patches.

The grasslands of our continental interior are another case in point. Traditionally the prairies have been thought of as climax communities, in which succession has led to the final, stable composition of plant species, so even fire has little or no effect on the mix of species present. In the new view a prairie is a sea of small patches, most often caused by small disturbances, that help produce the species mix we see. Orie L. Loucks of Butler University, Mary L. Plumb-Mentjes of the U.S. Army Corps of Engineers, and Deborah Rogers of the Technical Information Project in Pierre, South Dakota, who have studied the Spring Green sand prairie in Wisconsin, explain the idea. The patches include the work of pocket gophers and badgers and, on an even smaller scale, include mounds built by ants. Certain species of opportunistic plants, major constituents of the prairie, often rely on such openings.

Other papers treat the importance of disturbance and the patterns of patches in such ecosystems as shrublands and rocky intertidal zones, for such groups as insects and vertebrates, and for energy and nutrient pathways. Still others spell out the implications for genetics and evolution. A good deal of it, I must confess, was beyond me. But the book gave me a new way of looking at things.

During the winter I had spent much time along the Potomac River northwest of Washington, wandering through the sycamore-dotted alluvial sands and across the rocky outcrops of the fall line, around the little ponds and across the streams that lie between the river and the Chesapeake and Ohio Canal.

The whole strip looks like it has been bombed. Heavy logs are nestled in the branches of small trees. Whole stands of trees have been knocked over. In places the sandy soil has been swept away, leaving tree roots exposed three feet down; in others, mounds of sand and polished, rounded river rocks have covered what had been luxuriant plant life. A spent hurricane had dumped its rain on the Potomac watershed last November, producing the worst flood in 13 years. This is a disturbance of the first magnitude, and it is all completely natural.

At first, being there was as depressing as walking through a woods after it has first been lumbered and then stripped for firewood. But after reading Pickett and White, I thought some more. This stretch of river is no gentle floodplain, but it certainly floods. The worst in this century occurred in 1936. From then it was nearly 40 years to Hurricane Agnes in 1972, and another 13 to the latest. The period may be irregular, but flooding is certain. How then to look at that vulnerable ribbon of land between canal and river?

It is time to adjust my thinking and shorten my gaze. What strikes my eye as a mess, even ugly, is the real world, the natural world and I must learn to see it that way. To do it, I have to consider each patch in and of itself. What will come up where the trees are down? Will the sand piles spread out in the spring rains or be colonized where they are?

Doing so may teach me something about disturbances and something about patches. These concepts are not new, but neither are they widely invoked by biologists. In a paper on disturbance and vertebrates, James R. Karr, now at the Smithsonian Tropical Research Institute, and Kathryn E. Freemark, of Carleton University in Ottawa, offer an explanation of why not. Until recently, most work in ecology has concentrated on the "presumed equilibrium nature of biological systems." And even recent mathematical approaches to ecology have required assumptions of equilibrium in order to be easily handled.

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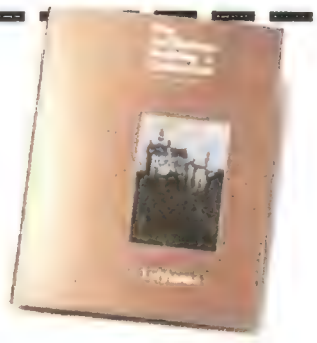

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Second, ecologists often make definitive statements from short-term studies, periods that may not be representative of the organism or biological system in question. Or they may average data from several study areas or from several years, so that real differences are inadvertently masked. These problems arise from the rules of the game—short-term research grants, the career need to obtain and publish results quickly—that discourage the long-term studies required to understand the role of disturbances and the resulting heterogeneity in biological systems.

In the concluding chapter of the book, Pickett and White argue that without proper regard for disturbance and the patch nature of ecosystems, biologists fall into error in two ways. They may erroneously extrapolate from measurements made during disturbance-free years to predict the future. And they may use a scale for their studies that masks patches of very different character.

Even a biologist who works hard at seeing the fragments of an ecosystem may still not be home free. In what for me was the best paragraph in the book, John A. Wiens of the University of New Mexico ends his paper on arid and semiarid ecosystems with a caution. The real trick, he argues, is to comprehend the patches in the same way that they are perceived by the organism being studied. The problem is not only that we see the environment "on a scale different from that of an aphid or an ant," but that we tend to emphasize whatever is most important to our dominant senses—especially vision. "Other organisms," he says, "may perceive environmental mosaics in quite different ways." Unless we can understand and adopt the organism's view of the environment, we are unlikely to discern what is really important and instead produce "patterns that are little more than artifacts, products of our misperception of reality." The correct answers, Wiens says, will come from study of the natural history of an organism and especially the changes in its behavior as it exists from place to place.

My work is cut out for me as I stumble over trees and slip in the sand. A hurricane has given me a prodigious disturbance to examine. It is up to me to find the patches, both those I can see and those the inhabitants see. And perhaps as the years go by I will begin to understand what the disturbance has done for, rather than to, one strip of land along a river.

John P. Wiley jr.

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By John P. Wiley jr.

Polar bears mingle with people on Manitoba's Cape Churchill

Loafing along the shore while they wait for Hudson Bay to freeze, the lords of the Arctic are tolerant of human intrusion

As the warmth and the light fade each autumn in North America, those creatures that are able move south. Whales and butterflies, striped bass and half our species of birds stream down the coasts and through the interior. Others escape winter in caves and dens, turning down their thermostats until they achieve that state we call hibernation.

One animal, however, rises up out of a months-long lethargy and begins to move north, into the cold and the dark, out onto the ice that now covers more and more of the rich waters of the sub-Arctic. For this animal winter is the good time, the season to feast on seals, to put on weight and eventually to breed.

At Cape Churchill in northeastern Manitoba, where the shore of Hudson Bay makes an abrupt 90-degree turn to the west, polar bears congregate in the autumn, waiting for the ice that is their home. By November, pack ice has formed beyond the fast ice, and the bears are moving. To be at the very tip of the Cape in November is to be in the middle of a slow but steadily flowing river of bears, methodically picking their way across the jumbled ice in a straight-line push for their hunting grounds.

The flow is nearly imperceptible to a first-time observer. Driving out to the point in our strange vehicles, we pass bears sleeping in the kelp beds and gravel banks along the shore. Eight-hundred-pound males raise their heads to consider us, pull themselves to their feet and move away unhurriedly. Cubs move in close to their mothers as they circle around us. A few bears come close to investigate, rising on their back legs to get a better fix on this strange sight emanating strange smells. But sooner or later the bears turn north again, moving out across the fast ice anchored to the tidal flats to the jumbled pack ice beyond. And then we begin to notice that far out on the ice to the east of us, on Hudson Bay proper, and to the west, over the shallow waters of La Perouse Bay, there are flashes of golden yellow appearing and disappearing in the white, a solitary male here, a mother with cubs of the year there, steadily working their way from shore, going home to the cold and the dark.

The polar bears of Hudson Bay are a distinct population thriving at the southern end of their range. Polar bears live on seals, and to hunt them they must have ice to get to where the seals are. Yet in Hudson Bay the ice melts by July and the bears have to come ashore, there to spend four months eating very little, digging into sand dunes and dirt so they can stay cool in the summer "heat," relaxing into a physiological

A 600-pound male, neither threatening nor afraid, contemplates some outlandish visitors to his domain.

Tourists crowd windows as bears inspect buggy. Vehicle is built high so bears cannot break windows.

Photographs by Dan Guravich

Where polar bears and people mingle

In some years Cape Churchill is overrun with bears, while in others only a handful are to be seen in a day.

A young bear stands straight up to get better view. Stance is a posture of curiosity, not aggression.

state like that of black bears in winter dens. They are the polar bear population most accessible to humans, and they are not only the best studied but the most easily experienced by amateur naturalists, photographers and just plain tourists.

Forty miles to the west, where the Churchill River empties into Hudson Bay, humans have lived since the people of the pre-Dorset culture settled there some 2,000 years ago. The Hudson's Bay Company has been there for more than 250 years. Today, with a railroad and scheduled airline service (but no highway), Churchill is a jumping-off point for the far north and has the first hospital for the sick or injured being brought down from northern Hudson Bay. The community of 1,200, which has had its ups and downs as a military base and a rocket range and study center for the northern lights, now happily bills itself as the Polar Bear Capital of the World.

In February 1978, when SMITHSONIAN first reported on the town and its bears, no tourists were coming to see them. Now the town's 120 hotel beds are filled dur-

Mississippi photographer Dan Guravich has been studying polar bears for the past decade. John Wiley serves on the magazine's Board of Editors.

This scene is from 1983. Two years later the second week of a camp-out had to be canceled for lack of bears.

ing bear season (more hotels are under construction), while more than 3,000 camera-toting travelers pump upward of a million dollars into the local economy. Stores promote polar bear tee shirts and jackets and souvenirs such as a cloth patch with the image of a polar bear and the legend: "Churchill Household Pest Management." (Bears are not the only attraction. Birders have discovered Churchill as an accessible place to see such birds as snow geese on their northern nesting grounds, as well as beluga whales, and the tour operators that take you to bears in the fall also take you to birds in the summer.) The town has thus turned a liability into a bankable asset.

In a chain of wildlife refuges running south from Churchill there may be as many as 2,500 of the white bears, and here zoologists can do the hands-on biology necessary to understand them. The scientists census the bears from helicopters, catch them in traps or shoot them with tranquilizers from the air, so they can be weighed and aged (by later counting the rings on an extracted tooth). Ears are pierced for plastic tags, and lips are tattooed with numbers. Some are fitted with radio collars and followed out onto the ice by light plane to see where and how far they go in the search for seals.

Pregnant females stay ashore, digging the maternity dens where they will give birth in December and January to helpless cubs that weigh only one to two pounds. Never eating, the mothers nurse the young until March or April, then bring them out of the dens and lead them in remarkably straight lines northeast to the ice, where they can feed for the first time in months. Biologists count them as they emerge, by tracks in the snow when the bears themselves are not to be seen. No one knows how the mothers navigate across as much as 65 miles of land to reach the sea. In July, when the ice melts, the mothers and cubs come ashore again with all the other bears, where the biologists are waiting for them. Older males spend much of their time on the beaches, while younger bears and mothers with cubs move inland. By October or early November the ice is forming again and the bears are moving back to the shore—and just as soon as they can—out onto the ice.

The edge of the ice is our destination, too. There are bears around Churchill itself, of course, but it is hardly their natural habitat—the streets are dotted with steel cages not for bears but for garbage, to keep the bears from getting into it, and next to the airport is a polar bear jail with 20 cages for animals that come too close to town. Driving east from Churchill in a tundra buggy, bulling through drifts and slipping on ice, we leave the world of humans and enter that of the bears.

The cold is numbing. The wind is blowing hard across the tundra. We get out to shovel when the buggy buries in a drift, and immediately our faces hurt. Take off a glove to adjust a camera, and the hand quickly becomes stiff and awkward. Back in the buggy we hold our hands over the small propane stove; it takes minutes for the pain to subside. There is a ten-year-old bear-observation tower at Cape Churchill, and beneath it caches of diesel fuel, but otherwise this

On the west side of Hudson Bay, Churchill lies at north end of historic polar bear denning area.

Nearly at the goal, a mother leads her cub across sand dunes at Cape Churchill on her way to the ice.

A mother, center front, chases away a much larger male, right, who had ventured too close to her cubs.

is a desolate world of tidal flats, glacial eskers and a little beach grass waving above the snow. It is November, the temperature is −5 degrees F in the daytime, −20 at night, and a strong wind is blowing unimpeded out of the northwest.

We camp between the tower and the point, on a frozen lake where the vehicles sit level. Two are the tundra buggies, about the size of school buses but built high over drivetrains originally designed for front-end loaders and dump trucks. Len Smith, an oil distributor who began the tour operation, got the idea for them when he saw an ad for the oversize low-pressure tires that would make it possible for a buggy to cross the tundra in summer with minimal damage and to move through snowdrifts in winter. The buggies are high enough so that a bear could not come crashing through the windows.

We have also brought with us a small tracked vehicle; a school bus on huge tires and fitted out with a gas stove and dining tables; and a trailer loaded with drums of diesel fuel, gas bottles and enough frozen food to feed 20 people for a week. At the tower we pick up an eight-bunk hunting lodge that rolls along on tank treads. To make camp, the buggies, the diner and the lodge are backed up to each other in the shape of a cross. "Back porches" on the two buggies and a metal landing on the diner make it possible to go from one vehicle to another without ever climbing down to the ground and risking an encounter with a bear. At night, most people sleep in the buggies and the diner, throwing their mattresses and sleeping bags on plywood panels resting on the seats. When we return to camp after a day in the buggies, the lodge becomes the Muktuk Saloon (muktuk is fermented blubber and highly aromatic, which the lodge becomes after six people sleep here for a week with no ventilation).

Bear lovers of all persuasions

Living is tight. One not only cannot leave, at least not easily, but cannot even get out and walk around. Yet this diverse group of people gets along remarkably well. We include a photographer from Quebec, an ad agency owner from Chicago, a gourmet-market owner from New Orleans, a flight attendant from San Francisco, tour operators from the Maritime Provinces and Seattle, physicians from Wisconsin, a man whose company installs insulation in oil refineries, a man who edits an oil company magazine, a young adventurer from Maryland and a retired executive from New York. What unites us is an eagerness to see polar bears.

Around us, the tidal flats and La Perouse Bay—where 20,000 snow geese nest in the summer—are covered with ice. In many places the ice has exploded upward, looking as if it had been shelled from underneath. These are spots where the 12-foot tide has set the ice down on rocks. The ice runs east and west to the horizon. To the north it goes only a few hundred yards to a lead of open, dark water. The lead is "steaming"—the water is much warmer than the air and is visibly evaporating into a fog bank. Beyond the lead is the pack ice, continually freezing underneath to form a mass many feet thick. This in turn has been piled up by wind and currents into pressure ridges tens of feet high. That shore lead, between the fast ice on the bottom and the pack ice, is all-important to us. A south wind will keep it open and discourage the bears from leaving. A north wind will close it and the bears will be gone.

Loafing in the kelp, dozing in the snow

We are lucky. The lead stays open, and some of the bears wait (they could easily swim across). On a typical day at the Cape we see a dozen or so. Driving from our camp out to the tip, we see two mothers with cubs of the year a mile to the east, picking their way north through the jumbled ice. At the point, we stop with three males ahead of us, a mother with two cubs on the right. The males are still lethargic, loafing along the shore, lying in kelp beds along the beach or in daybeds, holes they have dug out of the snow. They are alert to our presence, but not alarmed. When we come too close they pull themselves to their feet and amble away, looking back over their shoulders to keep an eye on us.

At one stop an 800-pound male walks up to our buggy and sits right next to us, looking up and sniffing. As the day goes on we see four more moving along out on the ice. At least one seems curious, begins to move in our direction, but then breaks off and continues his trek to the north.

All day we watch bears. Their heads look strong and potentially fierce. The black skin shows through the short hair on their snouts, which are longer than those of other bears. Biologists say their teeth have evolved from those of their omnivorous brown bear ancestor to those of a carnivore. We see their bulk, but not their strength. This animal can kill a 500-pound bearded seal with one blow—but it looks roly-poly. The rumps are almost comically rounded by the stores of blubber under the skin. The bears are downright floppy when they move, almost as if the skeleton and musculature move separately inside the envelope of blubber, skin and fur.

The eyes, nose and tongue are black; the rest is white, sometimes with a yellow wash. In the sunlight the hollow guard hairs glisten like glass. The front legs seem very long and come together at the body with no chest between them, a filled-out stick figure. The legs

Showing more agility than its shape would indicate, a yearling leaps easily from one ice floe to another.

are bowed and the front feet pigeon-toed. When a bear ambles, the front foot remains in place until the rear foot has come up and almost kicks it forward. The foot hangs behind as the front leg swings forward, and then the hind foot flops into place, exactly into the depression made by the front foot. Even when backing up, the front feet will drop precisely into the tracks just vacated by the hind feet.

The next day we encounter an 800-pound male with the letters XX painted on his back. Biologists had marked him earlier in the year at Owl River, about 100 miles to the south. We dub him Xavier Xenophon. At first he approaches us, but then circles around us to eat kelp on the beach. By noon he has left, moving northwest across the ice. At 4:30, however, when we are back at camp on a frozen lake and the cook has started dinner, he appears over a ridge, presumably attracted by the smells.

Xavier Xenophon is not the first animal to find the camp. The very first night ghostly shapes appear beneath the buggies, patches of white against the white of the snow, flitting from place to place, disappearing and reappearing. In the morning we see them: Arctic foxes, all white luxurious fur with black eyes and noses, running humpbacked, feet close together, noses near the ground, scurrying away to cache any morsel they have found. A bear that finds something to eat is soon surrounded by foxes that make quick feints, turning the bear in circles as it tries to ward them off, until one fox dashes in, tears off a piece and races away to hide it (p. 48).

One day at the point we find that an unusually high tide has flooded in over the fast ice. Xavier Xenophon and another bear about the same size are resting in the snow. XX gets up and walks into a deep pool of the new water, ducking his head under until only his letters show above water. After about ten minutes of this he comes out and dries himself in the snow. First he pushes his chin, chest and front legs through the snow, with his rear high in the air. Then he spreads out his back legs and drags his hindquarters along by pulling with his front legs. Finally he rolls over on his back and scrunches around in the snow with all four legs waving in the air, looking not a little human as he does so.

The other bear has been lying on his side watching all this. But now XX walks over to him and grabs him around the neck. They roll over, pushing each other off with their back legs. They tumble, mouthing each other's necks like puppies. They stand up on their back legs and grapple with their front legs. Once one bear moves its head very quickly, as if to tell the other to ease off.

Another day a smaller bear, perhaps 400 pounds, tries to cross the new ice and keeps falling through. He stands in the shallow water, pushes his chest up against the edge of the ice and spreads his front legs as far and wide as they will go and pulls himself up. The ice keeps breaking and he keeps repeating the maneuver until he is up on the ice again, where he shakes himself dry like a dog.

This bear stays with us, striking such perfect poses that we come to call him Barrymore. He has a long scar on his nose, plastic tags in his ears. And he is tough. He has found something to eat near the buggy one day when XX approaches him. Barrymore does not look up at him but repeatedly sounds a hoarse, breathy roar. Both show their teeth, XX roars once. But they never touch, and XX leaves Barrymore his

Two males about eight years old engage in the play fighting that will prepare them for the real thing.

A young bear sitting on new ice carefully licks a paw. The bears are fastidious about keeping clean.

prize. (Later XX comes back with his wrestling friend and this time Barrymore moves off quickly. The two larger bears finish eating Barrymore's discovery with no visible conflict, a sight that would have surprised the biologists of a generation ago. Then polar bears were thought to be strictly solitary.)

For a week we move among the bears, high off the ground in a heated cocoon. They are curious about us, but unconcerned. They are not afraid, and they are not threatening. We take them very, very seriously, however. Whenever anyone is down on the ground, one of the operators is there with a rifle. Polar bears are superb stalkers, and have a way of suddenly appearing heart-stoppingly close. Just two years earlier Fred Treul of Milwaukee had been leaning out of the driver's window to photograph an ivory gull when a bear reared up from under the buggy and bit down on his arm, trying to pull him out of the buggy, peeling skin and muscle as it did so. Treul nearly bled to death on the race back to town: snow blowing in 60-mile-per-hour winds meant nearly zero visibility and the trip took 14 hours. Doctors in Churchill and Winnipeg saved his arm, however, and he was back looking at bears the next year.

The buggy I spent the week on had been abandoned during that race into town when it broke through the ice and mired in a streambed. Bears had broken all the windows on one side and trashed the interior, methodically ripping the foam out of the seats. On a calm, sunny day, watching bears that seemed as friendly as the family dog, it was instructive to imagine rampaging bears tearing up the very seats we were sitting on.

In a week at the Cape, however, no bear as much as curls a lip at us. They are as lethargic as people in a railroad waiting room late at night. Even when they move, they seem to expend as little energy as possible. We are invading their world, rousing them momentarily from their resting state.

The bears appear perfectly relaxed, completely at home in what for us bundled-up humans on the buggies is a harsh, uninhabitable environment. Never have I had such a strong feeling of being an alien, an outsider. And never have I understood so well the words of Henry Beston in *The Outermost House*: "In a world older and more complete than ours they move finished and complete, gifted with extensions of the senses we have lost or never attained, living by voices we shall never hear. They are not brethren, they are not underlings; they are other nations, caught with ourselves in the net of life and time, fellow prisoners of the splendour and travail of the earth."

With Barrymore we do intrude too much. He stays with us three days, delaying his march over the ice to the seals. We chase him once with a buggy, racing the engine and blowing the horn, to make him drop a can he has found, in the fear that he will slice his tongue, wedge it over his snout or swallow it. He tries to follow us when we break camp and head back to Churchill. When firecrackers do not deter him, we finally fire a rifle in his direction, four shots kicking up the snow and gravel around him before he turns away.

The great white bears are intruding on the world of people, too, and the interactions are fatal to both. Offshore oil rigs are moving into prime bear habitat in

Awakened in its daybed, a large male keeps an eye on intruders. Polar bears sleep as much as humans do.

A bear jumps at Arctic foxes that are harassing it, feinting for an opening to dash in and steal food.

Sitting in a depression she has scooped out of the snow, a mother grooms one of her cubs as they nurse.

the western Canadian Arctic now, and bears have killed workers on the rigs. Scientists want to find out the best ways to deter bears without destroying them. A team of biologists spent the early fall in the tower at Cape Churchill, trying different techniques on bears that came too close. Rubber bullets worked best, but Canadian law strictly limits their use to police.

An individual bear is unpredictable and therefore dangerous. But the more general question of danger depends on the bears' condition. If they have fed well and are round with blubber, they are less of a menace, though still unpredictable. Churchill probably has more experience with polar bears than any community in the world, and the numbers there are instructive. In 1983, about 93 bears were captured in Churchill. A new rule was imposed after that season that requires any bear that appears in the dump or closer to town to be intercepted. Conservation officers estimate that if the new rule had prevailed in 1983, at least 200 would have been taken into custody. In 1984, only ten bears were locked up. Then last season, 70 bears were hauled in. The presumption is that during the winter and spring of 1984 the bears hunted so successfully that they came ashore with more than enough fat reserves to see them through the summer and had little interest in investigating the smells from town.

A man is killed and the rules are changed

The rule was changed after a man was killed by a bear in Churchill in 1983. Apparently he and a bear were both foraging in the kitchen of a burned-out hotel after midnight. Since then the town has drawn a line east of the town, just beyond the garbage dump. Any bear found at the dump, about six miles east of the town, or between the dump and town is picked up and taken to jail. (Mothers and cubs are kept together in large enclosures.) Any bear found between the dump and the rocket-launching range, another eight miles to the east, is captured, weighed and measured, tagged, tattooed and released.

We stopped at the jail one Saturday. A helicopter with a cargo net slung underneath had been ferrying bears to the Seal River, about 40 miles north. The jail is a triple Quonset hut with cages designed to hold 20 bears at a time. Conservation officers had trapped or tranquilized 70 bears during the 1985 season, which meant that 50 had been flown north to be released. I walked up to a culvert trap behind a pickup truck and found myself face-to-face with a 500-pound male. The Manitoba conservation officers were trying to decide whether to drive down to the beach and release the bear on the ice. They finally decided not to, and backed the trap into the jail. Ian Thorliefsen, a Manitoba wildlife technician, told us that a mother and two cubs

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Cubs of the year, now about seven or eight months old, cuddle up with their mother in a quiet moment.

we had seen from town out on the ice had walked right by his van earlier in the day. They were coming from the direction of the dump.

Bears and dumps are a perennial problem in wildlife management. One of the bears in the Churchill dump last November was Linda, a regular. She was first caught there as a yearling in 1966. She is not only habituated herself, but always brings her cubs. Most of the bears found at the dump are subadults that have not yet learned to hunt well.

On occasion Churchill has been disastrous for bears. One conservation officer, quickly named Speedy by the townspeople, shot 22 before he was transferred to a less exciting post. Homeowners have shot them in the process of breaking and entering. Others have been shot while supposedly threatening human life, sometimes under questionable circumstances.

Most of the time, however, the town is remarkably relaxed about being infiltrated by half-ton carnivores. Len Smith, the man who built the tundra buggies out of scrap, tells of a day shooting geese at a pond outside of town. He shot one, he says, and his dog swam out and retrieved it. He shot another one a little farther away, and a bear emerged from the bushes, swam out and retrieved it. Smith says he just kept hunting, his dog and the bear sharing the kill equally.

North of Churchill, across the line in the Northwest Territories, polar bears are hunted regularly. Each Inuit village has a quota and even though the market for polar bear hides has shrunk and the price has dropped, they kill some every year. While we were at the Cape, hunters at Eskimo Point, a village 150 miles north, killed a 1,300-pound male. Inuit hunter and trapper associations can sell the right to shoot a bear on a guided, dogsled hunt, and in theory a U.S. citizen could go up there and kill one. He or she could not bring any part of the bear back into the United States, however. Polar bears, which spend most of their time on the sea and not a little in it (they can swim at least 40 miles), are protected under the Marine Mammal Protection Act.

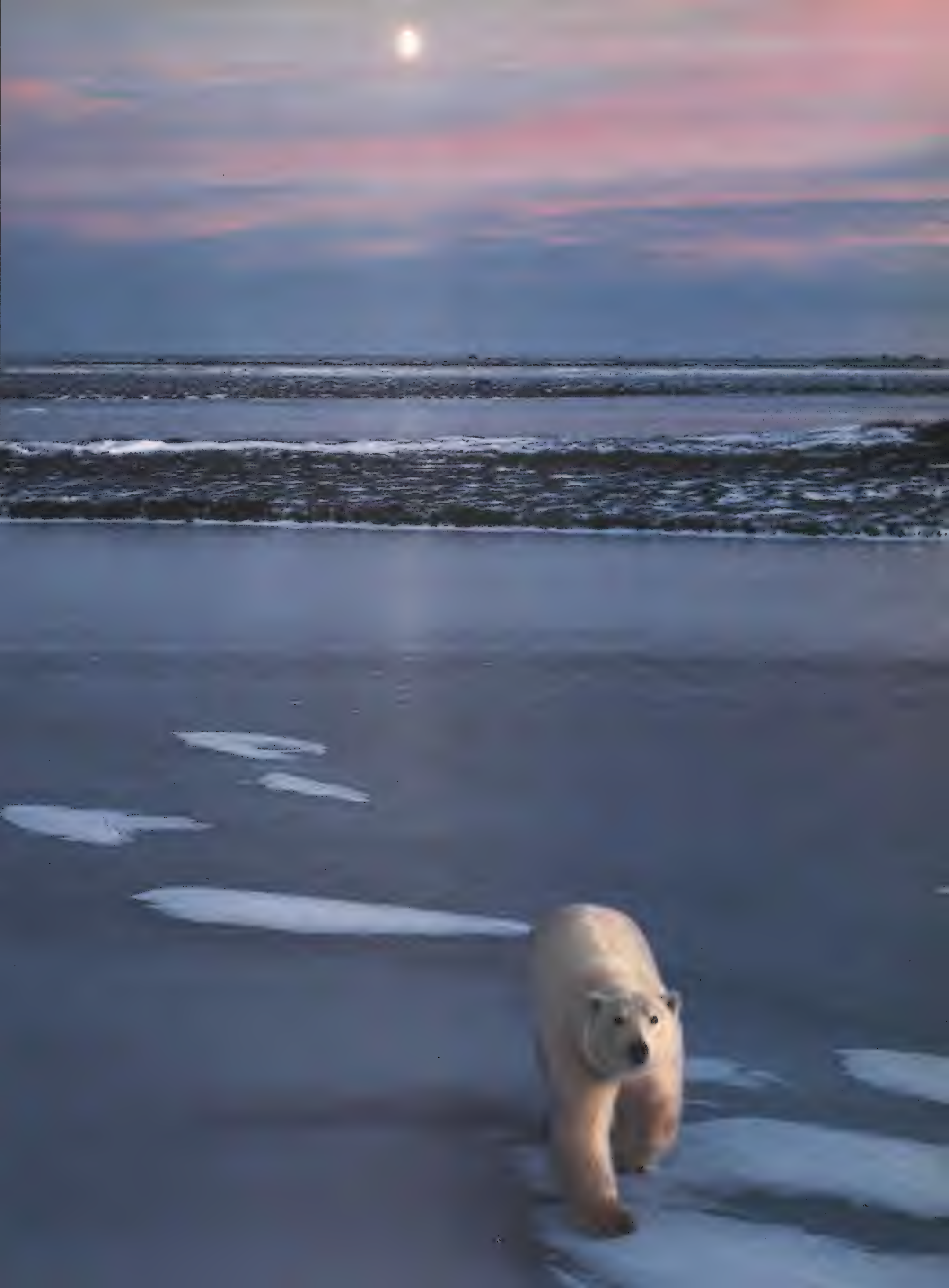
Humans are pushing farther and farther into the Arctic, looking for oil and other riches. The worlds of men and bears will overlap more and more. So far, the bears are not threatened as a species. Nobody knows with any certainty, but the best estimates place the world population of polar bears at 20,000. They are completely protected in the Soviet Union and there is a moratorium on hunting in the Norwegian islands of Svalbard. In Alaska, indigenous hunters shoot 60 to 120 bears a year.

Research continues, despite budget cuts that limit the use of aircraft. As the next logical step in polar bear study, biologists are turning more attention to the seals they prey on, looking for patterns in their populations and movements. As the seals go, so go the bears.

Our week ends, and we start the long drive from the Cape back to town. About halfway we see our last bears, a mother and cubs investigating an abandoned hunting cabin. We see more creatures of the Arctic, too: a white-phase gyrfalcon hunting from a cabin roof, a snowy owl perched on a pole. At one point we get out and flounder through the willows and snowdrifts, trying to take pictures of rock and willow ptarmigan scampering across the snow. For some of us they are firsts, exciting additions to life lists. Yet after a week with the bears, everything else is anticlimax.

It is March now. Most of the great white bears have been out on the ice all winter, and now the mothers with new cubs are joining them in the hunt. The breeding season is coming, when 1,000-pound-plus males will fight for real. My thoughts turn to a day in November, the sun setting crimson over the ice, the wind whistling out of the dark northwest. We humans were packing up our cameras, thinking of getting back to camp, a drink in the Muktuk Saloon, a hot supper. But out on the ice to the west of us a mother was leading two cubs north into the night. They moved slowly over the ice, the cubs now falling back, now catching up. She set the pace of a human mother bringing her toddlers home from the park. She moved farther and farther into the dusk, the bitter cold. They were going home.

As the sunset fades and the moon brightens, a bear crosses the frozen tidal flats at Cape Churchill.



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Today the rugged facade of church where Texans made their last stand is familiar the world over.

By Eric von Schmidt

The Alamo remembered– from a painter's point of view

Distinctive pyramid in rough stone above windows was added by U.S. Army engineers around 1850.

As portrayed over the past 150 years, the Texas battle seems heavily encrusted with heroic myth and misinformation

Alamo means "cottonwood." And just as cottonwood grows along rivers, and as rivers are the bloodstream of history, the Rio de San Antonio which flows past the Alamo has flowed into history. The history of Texas. The history of Mexico.

Both countries still remember the Alamo—sometimes with smoldering passion, often as heroic myth. But in each case it is a different passion, a different myth—as I quickly found when I began trying to create a historically accurate painting of the battle, which took place 150 years ago this month.

For Texans, of course, the Alamo has become hallowed ground, a symbol of the fight for independence, casting off Mexican tyranny, and an inspiring example of true Texan grit. For the Mexicans the victory at the Alamo was seen as that of a nation outraged by rebellious colonists and arrogant pirates of a distinctly Anglo-Saxon character. They knew that if North America was not quickly contained they would stand to lose the province of Texas. They were right. In the end the Alamo helped set off a long series of disasters, costing them not only Texas but more than half of all Mexican territory. Allowing for exaggeration, it seems to me both sides were pretty much on the money.

Mexico was a huge new republic

In 1836 Mexico was a huge young country. Lately broken away from Spain, it had good reason to claim ownership of much of what is now the Southwest and the Pacific coast of the United States. In its early stages it was also a republic with a brand-new federal constitution; its ideals were high, its goals were wide. Mexican provinces had their own legislatures. One such was a vast tract of turf between the Sabine River and the Rio Grande that eventually became Texas. The main reason Mexicans opened up colonization of these remote northern regions to foreigners was that they couldn't get their own people to do it. Comanches and Apaches figured the territory was theirs, and anyone foolish enough to come into it was fair game.

This was rich land. Beautiful land, too. Immigrants from the United States flocked to it. In return for swearing allegiance to Mexico and its constitution of 1824, and at least nominally becoming Roman Catholics, they got land, special deals on duty-free trade, and were left virtually free from Mexican taxes. "A live mastodon would not have been a greater curiosity than a tax collector," one immigrant reported to the folks back home. Another described the place as a "heaven for men and dogs; hell for women and oxen." By 1830 three-fourths of the population of this Mexican province was North American.

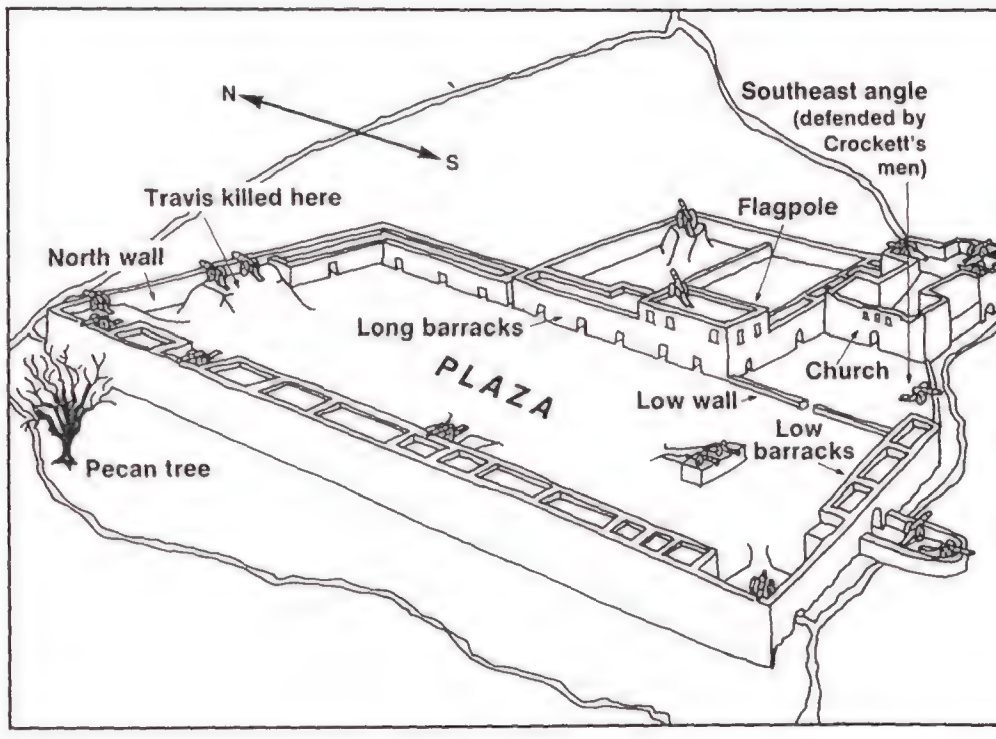
Proud of its Hispanic culture and its charitable act, the Mexican government saw itself as benefactor. It was

almost as if there was a Catholic version of the Statue of Liberty standing in the middle of the Sabine River beckoning to the huddled masses flooding in from the North. So it became furious when it saw that some Texans looked on Mexican citizenship as a sort of temporary joke, owned slaves (then forbidden by Mexican law), resented all restrictions from Mexico City and took it for granted the province would soon be theirs.

Mexico had long been ruled by Spanish viceroys. The new republic's government soon succumbed to its own strong man, President-General Antonio López de Santa Anna. Coming to power as a "liberal," he quickly suspended the constitutions of all provincial legislatures and threatened reprisals against any citizen who challenged the power of his central government. Some Texans, like William Barret Travis, were spoiling for this particular fight. Others, like Stephen Austin, counseled patience. Austin even journeyed to Mexico City to plead with Santa Anna. For his pains he was tossed into prison without an audience—and held for more than 18 months.

The upshot was that Santa Anna marched north with an army to assert federal power. One of his targets was a handful of defiant Texans who had taken hold of the Alamo, a great walled courtyard with an attached church built by Spanish priests not as a fort but as a mission. Col. James Bowie had brought orders from rebellious leader Sam Houston to blow the place up as indefensible, and retreat. But once there, Bowie couldn't bring himself to give the order. And his co-commander Travis, eager to draw attention to the plight of Texas even if it might mean martyrdom, sent out a message calling upon "all Americans in the world" for help. He would fire another shot heard around the world, he felt, and even if the Alamo fell, "the victory will cost the enemy so dear, that it will be worse on him than defeat."

When Santa Anna approached the Alamo he had about 2,500 men. The defenders of the Alamo, augmented by volunteers like Davy Crockett and, later, 32 brave souls from the town of Gonzales who marched in at the last minute, numbered only 188. For 12 days the Mexicans had besieged and bombarded the Alamo with little effect. Then, near dawn on March 6, 1836, Santa Anna sent 1,500 troops against it. When the killing stopped, something like 600 Mexicans lay dead or dying. All but one of the men and boys who defended the Alamo were dead. A single Mexican defender, out



Early sketch, done by Mary Maverick in 1830s, shows low wall, church and barracks. Diagram at right helps explain battle. The walled plaza, about 150 yards long, was too big to be defended by so few men and was quickly invaded. After fierce resistance inside compound, especially at the southeast angle, some defenders retreated into church for a last stand.

Firebrand William Travis commanded during battle.

James Bowie, famous for his knife, lay ill, was bayonetted in bed.

Mexican general, Santa Anna, wanted no Texan survivors.

of eight who had fought for Texas, somehow managed to escape with his life.

Of the defenders' heroism and resolution there is no doubt. But some celebrated examples are more than questionable, most notably the story that Davy Crockett died on top of a pile of 30 Mexicans whom he dispatched before succumbing. As Reuben Marmaduke Potter, the first U.S. chronicler of the Alamo, put it: "Where horror is intensified by mystery, the sure product is romance."

Anyone trying for a cohesive portrayal of the battle is confronted by all sorts of difficulties—not the least being the fact that you cannot be truthful at all and put the three most famous defenders on the same canvas. Travis was killed on the north wall of the plaza in the early moments of the attack, about 150 yards from Crockett's position defending the southeast palisade. Bowie, who earlier shared command with Travis, lay sick in bed in the south barracks and was killed there. The Alamo fell, not because it was too small, but because it was too big and too spread out to be defended by so few men.

My earliest research produced three celebrated depictions of the event: the ones that turn up everywhere. All are good and quite different from each other. Assuming that the earliest would be the most authentic, I based my first sketches on Theodore Gentilz's *The Fall of the Alamo* (p. 60). The date accompanying the reproduction was 1844. His neat and tidy version offers a bird's-eye view, lots of space, a good deal of information and almost no sense that an actual battle is being fought. Later I learned that this rather prickly Frenchman didn't arrive in Texas until 1844, that his sketches for the painting could not have been made until 1848, and that the final work probably wasn't completed until about 50 years after the battle. While Gentilz shows the church facade as it looked before some U.S. Army engineers Taco-Belled it in 1850, his depiction of much of the rest is somewhat fanciful.

Next I encountered Robert Onderdonk's *Fall of the Alamo*, which seemed to have achieved a quasi-official status. It was completed in 1903, but there is nothing distant or remote about this five-by-seven-foot canvas. A stolid forthrightness here: the combatants are front and center. If you didn't know better, it would seem almost as though the Mexicans are getting whipped. Onderdonk's church facade is something of a hybrid. The 1836 roof line coexists with upper windows that were, in fact, added in 1850.

Onderdonk's biography says the painting was done on a commission from a Dallas businessman, James T. DeShields, and that the original title was to have been *David Crockett's Last Stand*. But the pose of Crockett is most intriguing. In 1895, the Anheuser-Busch Brewing Association began to swamp the country with a wildly popular and delightfully inaccurate lithograph by Otto Becker called *Custer's Last Fight* (SMITHSON-

A painter-historian, composer and folksinger, Eric von Schmidt spent three years researching and painting his Alamo picture. He has also written a ballad, called "The Alamo," about the battle.

IAN, June 1976). If you reverse the mythically potent Custer over the figure of Crockett in Onderdonk's *Alamo*, you have a near-perfect fit. Both are complete with legendary yellow-tinted buckskins, legendary red bandannas, and even their legendary trademarks at full brandish: George's saber, Davy's long rifle.

The Fall of the Alamo is entirely unlike most of Onderdonk's other works, before or after. It is possible that DeShields suggested the "Last Stand" title, urging something along the lines of the Custer lithograph. Fortunately, except for the Crockett figure, Onderdonk came up with a stately and well-organized composition, quite unlike Becker's tumbling frieze of tangled bodies—so suitable as a blear background to serious boozing.

There is a tone almost of religiosity in Onderdonk's *Fall of the Alamo*. And as in most works of this kind, it is not hard to tell the good guys from the bad. His clean-cut, almost dapper Texans possess an uncanny knack for fighting—and even dying—with a shining, Protestant grace. Their Mexican foes, blessed less fortunately, thrash about and expire in messy heaps. It should be kept in mind that while the painting was completed 67 years after the battle, it was only about four years after the end of the Spanish-American War.

Conveying the raw feel of combat

A similar bias is even more evident in Henry McArdle's *Dawn at the Alamo*, finished around 1883. McArdle's Mexicans are so repellent as to conjure up flashbacks to the terrible flying monkeys in *The Wizard of Oz*. Still, it is a remarkable work. If Gentilz has given us information, and Onderdonk has given us mythology, then McArdle gives us a vision. And what a vision it is. Hieronymus Bosch would have approved of this demonic swarm; Max Ernst would have applauded its surreal overtones.

The wonderfully lurid sky represents the natural occurrence and the dawn of Texas' liberty as well. McArdle captured the spirit of the battle. His painting is the only one of the three that conveys the raw feel of combat. But it is also a minefield of misinformation. For reasons of narrative and composition he puts the two main characters in places where neither of them actually fought.

Looking at these three paintings, I felt that one element was lacking: *a sense of personal experience*. For whatever reason, the painters stood outside their subject; to get closer, to get as close to the bone as possible, I realized I'd have to discard all my early sketches and involve myself with the reality of the fight.

But finding reality in the maze of myth and misinformation that surrounds the story of the Alamo is not all that easy. Fortunately, some very early sketches exist. Seth Eastman's 1848 pencil drawings offer many clues to the construction of the buildings. Lt. J. Edmund Blake's 1845 sketch shows the long barracks and part of the wall connecting it to the church (see diagram, p. 56). Blake's version is substantiated by a crude sketch done in the 1830s by Mary Maverick, the young wife of one of the original Texas rebels.

Perhaps the best primary source is not a drawing at all, but a small map. What makes it so important is its date: March 1836. It was drawn just before the battle by Santa Anna's commander of engineers, Col. Ygnacio de Labastida. It may be the closest thing we will ever have to a Rosetta stone that will help explain the Alamo defenses at the time of the battle. As Jake Ivey, an archaeologist involved in a 1977 dig at the Alamo, put it: "Mythology doesn't help when you dig a hole."

The Labastida map held up remarkably well during the excavations and it became my touchstone, too. Because I was trying to convey a confused and scattered event, I chose as "point of view" an angle that focuses

Friends of the Governor's Mansion, Austin, Texas

Texas State Capitol Senate Chamber

on part of the Alamo church facade (because it's still there and because the defenders retreated to it to make their last stand). But it also takes in a large part of the original main plaza (because it *isn't* there anymore).

What first struck me was the incredible chaos, the noise and confusion that must have exploded in that plaza. Then the bayonets. I thought, "What must it have looked like, from slightly below eye level?"

Reuben Potter didn't visit the ground until five years later, and concluded that the defenders had four light cannons along the very southeast palisade position that I took as my point of vantage. Four became holy writ. Gentilz shows two, however, and Labastida only one. We now know that all the artillery positions and most of the fortifications were blown to bits by the retreating Mexican army in May 1836, after Santa Anna's forces met disastrous defeat at the hands of Sam Houston on the plain of San Jacinto. While Potter relied on speculation, another Mexican map, drawn later by Captain Sanchez-Navarro, an engineering officer who was present at the battle, also shows only a single cannon. I decided to go with one cannon, too.

Contemporary military practice dictated that a gun platform be elevated at least three feet above the ground. The raised platform gave me just what I needed pictorially. The "viewer" would be directly involved in the eye-level foreground conflict but would also be aware of the fighting in the plaza beyond.

Another consideration was the "low wall" that separated the area in front of the chapel from the fighting in the distant plaza. Potter sets its height at four feet, but I have found no basis for his estimate. The wall is recorded on the Labastida map and in Mary Maverick's sketch, but it is not mentioned in any contemporary account of the assault. So it seems likely to me that the wall was too low to be of much military consequence.

Another hardy Alamo fable insists that the battle was a duel between Kentucky long rifles and Mexican muskets. While the former, a long-barreled, small-bore "squirrel gun," was effective in its natural habitat

Fold out

Three best-known battle scenes: at left, Robert Onderdonk (1903) features Crockett, clad in buckskin, wielding Kentucky rifle, as noble Anglo defenders are beset by sinister Mexicans. Henry McArdle's kinetic but fanciful 1883 rendering (above) incorrectly puts Travis (far right, with pistol) near Crockett (clubbing soldier). Mexicans are grotesques; guns and chronology are hopelessly scrambled. Theodore Gentilz (right) offers overview and much more accurate detail but no sense at all of battle. Gentilz came to Texas in 1844, painted picture years later.

Eric von Schmidt's painting, 23 feet long and ten feet tall, now hangs in San Antonio's Witte Museum. It presents a broad-angled sweep of the battle's later stages. Action rages from the church (at right), past the

end of the long barracks (topped by flagpole), over low wall and on to furious melee in the distant plaza. The western wall is marked by a lone pecan tree. In the foreground, hand-to-hand fighting has broken

out around a captured gun at the southeast angle,
which was defended by Crockett and his Tennesseans.

The defenders fall back from the low wall as Col. Juan Morales (with sword) leads Mexicans forward.

(the Eastern frontier), it was damned near impossible to load while on horseback. A few would have been on hand, no doubt. But the principal arms probably were shotguns and the shorter hunting rifles, the plains forerunner of the lethal Hawkins type. Lt. Col. José Enrique de la Peña, whose diary records a firsthand account of the battle, speaks of the disorder and confusion of the troops as they attempted to climb the wall at the northwest corner. He says, "The first to climb were thrown down by bayonets already waiting for them behind the parapet. . . ." Those bayonets were probably attached to captured muskets.

The musket commonly used by Mexican infantry at the time was a British export, the third model Brown Bess, only slightly improved since the American Revolution. But with a vicious, triangular-shaped 14-inch bayonet attached, this heavy, four-and-a-half-foot musket became a brutish, terrifying thing. As for the defenders' small arms, de la Peña mentions pistols. No doubt a few Bowie knives, or similar large knives, were used in the last fighting; but it was undoubtedly the smaller, prosaic, butcher-type knife that predominated. It was only *after* the fall of the Alamo, which made Bowie a national hero and martyr, that the Bowie version, with its long blade, clipped point and cross guard, became popular—so popular that the English cutlery industry was soon kept busy churning out the weapon for the American trade.

Santa Anna's general orders stated that ". . . all shako chin-straps will be correctly worn—these the Commanders will watch closely." Can't you just see the Mexican officers, with all hell breaking loose, trying to keep good track of those shako chin straps?

Texan get-ups are more troublesome. In all previous portrayals, the clothes lean heavily toward the "cowboy-cum-mountain-man" look. It is misleading to base the general dress of these men on the sometimes exotic Anglo-Indian garb of Fess Parker as the fictional Davy Crockett or of the real Sam Houston. Men with an affinity for native American culture were in the distinct minority. "The period of the 1830s was distinguished by a rather effeminate and extremely unpicturesque style of costume for men." So notes the author of a 1937 *History of American Costume*, and judging by contemporary images, this description was right.

Many of the men who died defending the Alamo were newcomers to Texas. Some would have arrived with little more than the citified clothes on their backs: flyless pants reaching up to just below the rib cage; coats, tight in the shoulders, sleeves and waist.

Even near the frontier, period prints show a surprising number of top hats. They were as common as the fedora would be a century later. While the cowboy-mountain-man look has been favored by painters, cartoonists and moviemakers, the "cowboy" would not be a reality for several decades. Furthermore, actual mountain men moving westward after the 1820s had a distinct inclination to make a right turn (north) when they got to the Mississippi River.

Headgear made of animal skins has been around since prehistoric times; but there is little credible evidence that Crockett wore a coonskin cap during the

Texan and Mexican soldier, in Napoleonic uniform with shako, fight for cannon—probably a 12-pounder.

In the midst of fight Lt. José Torres bravely lashes the Mexican battle flag to the Texans' flagpole.

fight. The only known Anglo survivors of the battle, Susanna Dickinson and her small daughter, viewed the grisly aftermath as they were being led from the Alamo. She said she recognized Crockett lying dead and mutilated near the church, and even remembered seeing his "peculiar cap" lying by his side.

At the time the word "cap" only implied headgear with a visor, and *peculiar* in this instance, didn't mean odd. It merely meant the cap was Crockett's particular hat. And since in my view he didn't wear coonskin hats generally, I did not take the large leap into mythology required to equate "peculiar" with "coonskin."

A lot of Alamo lore is easier to disprove than to dislodge. Regarding the timing, most of the early, major writers on the subject have fixed the end of the battle as late as 9 o'clock and some dodge the issue entirely. In his biography Santa Anna states that the battle lasted four hours. This is a splendid example of "the longer the battle, the greater the heroism" syndrome. Those who have taken his word for it would have done well to note that in the meager seven sentences that he devotes to the entire Alamo episode, there are four *other* self-serving lies, among them the assertion that 600 Americans (versus 200 Mexicans) were killed.

This fierce and bitter clash was intended as a night attack, and as Walter Lord correctly states in *A Time to Stand*, it was certainly over before 6:30 A.M. John Wayne, who filmed the battle almost as if it were a gigantic shoot-out at high noon, built an Alamo all his own just for the movie. Located in Brackettville, Texas, about 100 miles west of San Antonio, this seemed the perfect place to find out how much light would have been present on the morning of the battle.

Keeping in mind that the "Waynamo" faces east instead of west, I spent a night wandering around in the faint moonlight, jotting down impressions with a big felt-tip pen. It wasn't until 6:30 A.M. that I realized I was writing in red, not black.

A nonspecific quality pervades all the paintings I consulted, as if "weather" has taken a holiday. Yet De la Peña mentions that "The moon was up, but the density of the clouds that covered it allowed only an opaque light in our direction, seeming thus to contribute to our designs." It turns out that March 6, 1836, was three days after the full moon, so, between 3 A.M. and 6 A.M., the moon was 88 percent full.

General orders called for the assault to begin at 4 A.M. Then it was delayed for an hour—why, no one knows. Maybe the cloud cover began to dissipate. When the signal to attack finally came, it was an archaic trumpet call, a faded memory of the brutal Moorish wars in Spain: the *Degüello*. The name comes from the Spanish for "to slit the throat." It would have been echoed by the massed bands at Santa Anna's command post; that sound and the shouting of the charging columns converging on the Alamo from four directions woke up the defenders.

Essentially there were two battles that morning: one outside and one inside. The small Mexican artillery pieces never succeeded in breaching the wall and were not used in the final assault. In effect, it was a chaotic, shifting mass of troops outside and a confusion of half-

Defenders fire from sandbagged windows and roof of church just before more Texans retreat inside.

awake defenders within. Three of the four Mexican columns drove at the northwest corner where the Texans had attempted to shore up the crumbling north wall; the attackers used the horizontally placed logs as a kind of ladder.

Unskilled in even the basic knowledge of musketry, many Mexican soldiers suffered throughout from "friendly fire." De la Peña laments: "the commander-in-chief maintained that they would become accustomed to gunfire during combat." One wonders how many of the hundreds killed and wounded on the Mexican side were victims of this philosophy.

My painting shows the end of the battle inside. Once the Mexicans were within the walls it surely did not last long. The explosion of lethal energy is almost beyond comprehension. Because Travis was already dead and Bowie, burnt out by fever and alcohol, played no role in this part of the battle, only Davy Crockett appears in my painting.

In a few minutes the Mexicans were in control of the plaza. Ramón Martínez Caro, Santa Anna's secretary, wrote of this final part of the attack: "The enemy immediately took refuge in the inside rooms of the fortress, the walls of which had been previously bored to enable them to fire through the holes. Generals Amador and Ampudia trained the [Texans'] guns upon the interior of the fort to demolish it as the only means of putting an end to the strife. On the opposite side, where there was another entrance to the enemy's stronghold, the resistance was equally stubborn."

This is the view I show. The Texans have abandoned the outer defenses of the fort. The Mexicans have overrun the plaza and are in the process of penetrating the area directly in front of the church. The commander of the attacking column, Col. Juan Morales, sword in hand, is directing the action. Crockett, who commanded the southeast gun position, gestures for his men to fall back into the church. This section of wooden palisades was considered the weakest point in the defenses, but there is no evidence that attackers gained entrance there.

The old Spanish friars who built the Alamo had constructed a series of three-room structures along the west wall. By the time of the battle, many of the roofs had been torn off, the houses filled with rubble and ten-foot-high ramps built for gun batteries. Only low platforms were required for the other cannon. But the stone buildings were strongly built. The foundation of the barracks shown at left in my painting was uncovered during excavations, and it is said that the bulldozer used to build the hotel now opposite the Alamo accomplished in less than an hour what Santa Anna's artillery failed to do in 12 days of bombardment.

According to Mexican accounts, several men attempted flight and were cut down outside by Mexican cavalry. When the Mexicans finally took the church their forces brutally mopped up there. A few men were taken alive simply because they were not found until after the massacre. Theirs was the saddest fate of all. De la Peña records in his memoirs: "Some seven men had survived the general carnage and, under the protection of General Castrillón, they were brought before Santa Anna. Among them was... the naturalist David Crockett, well-known in North America for his unusual adventures. . . . Santa Anna answered Castrillón's intervention in Crockett's behalf with a gesture of indignation. . . . Though tortured before they were killed, these unfortunates died without complaining and without humiliating themselves. . . . As for me, I confess that the very memory of it makes me tremble and that my ear can still hear the penetrating, doleful sound of the victims."

All the women and children who survived were set free. Some say Santa Anna gave the women each two dollars and a blanket, and sent them on their way. At the time he thought he had crushed Texan resistance with the example of pitiless ferocity. But in this he missed the point entirely.

I hope my painting honors the sad stones of the Alamo. If it does not convey the popular notion of that battle I can do no more than to quote its first historian, feisty old Reuben Potter: "If we owe to departed heroes the duty of preserving their deeds from oblivion, we ought to feel as strongly that of defending their memory against the calumnious effects of false eulogy, which in time might cause their real achievements to be doubted."

As Texan retreats (center), Davy Crockett, wearing his "peculiar cap," points way to church doors.

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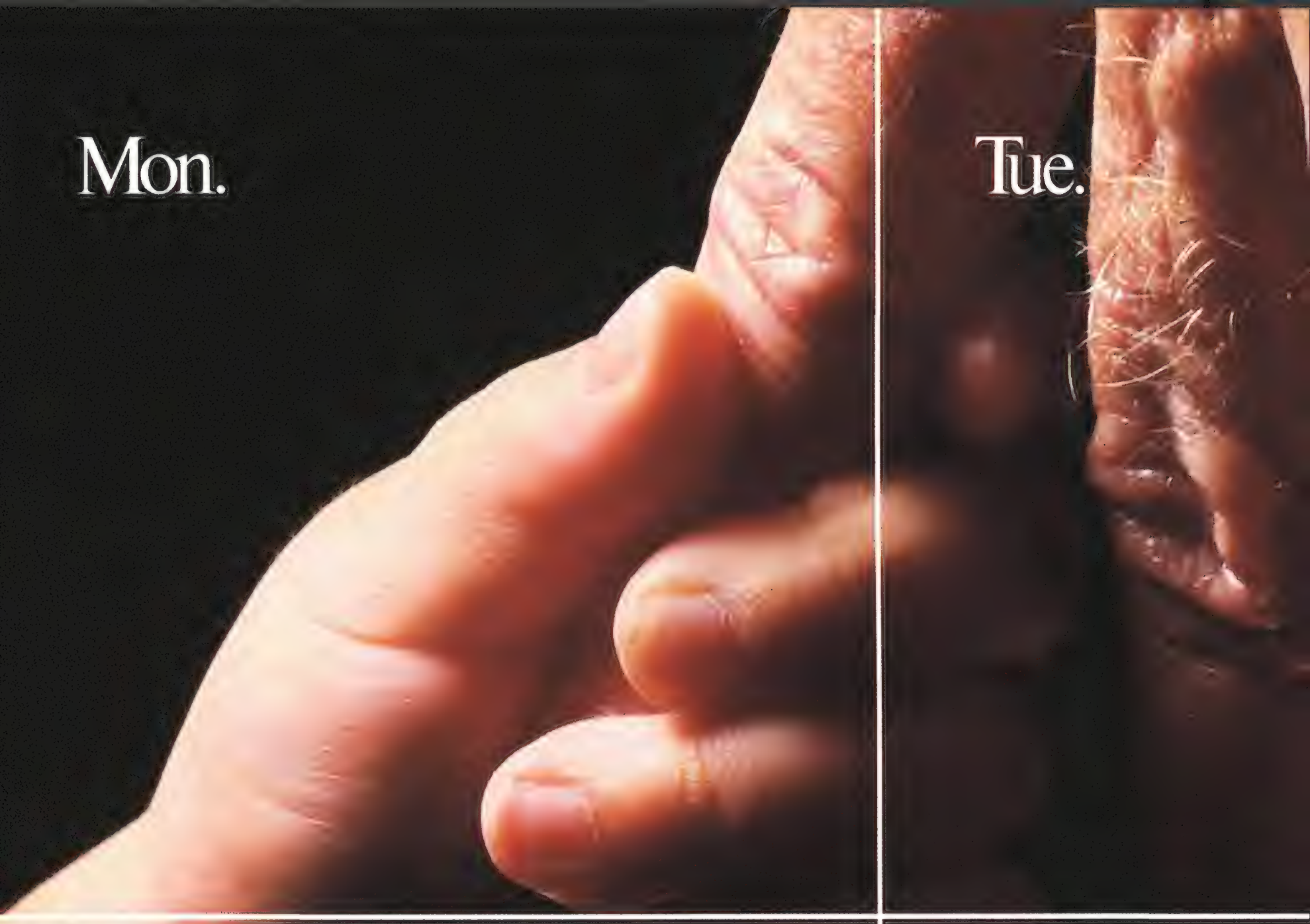

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Newsweek

Why it happened. What it means.

By Michael Parrish

The big guy's back, flying high again and creating a flap

Scientists and laymen alike are excited about a dramatic replica of the extinct pterosaur that can manipulate its broad wings in flight

On a calm, sunny morning just before Christmas, an altogether handsome day for a test flight, a dozen young engineers gather at the edge of a field about 35 miles northwest of Los Angeles. The object of their attention is an imposing replica of a prehistoric winged reptile known as the pterosaur. It has already been winched aloft a couple of times. Now the crew is hoping to see it fly without its detachable tail boom. If it passes that test, it will soon be ready for the next challenge. Ray Morgan, piloting the 35-pound beast from the ground, will push a lever on his radio-control console and this $500,000 working model of the largest animal that ever flew will no longer just soar overhead like a glider. It will, if all goes well, begin to flap its huge wings, propelling itself across the sky like a 65-million-year-old dream.

At the moment, however, the earthbound predator looks more like something that came straight out of a nightmare. Its glassy green eyes are set in a large blue head at the end of an enormous orange broadsword of a bill. Its neck and body are covered by a layer of short, stiff hair. "I'm convinced the fur isn't helping things at all," says Henry Jex, standing to one side while other engineers make a final prelaunch check. Jex is willing to accept the compromises entailed in this sort of collaboration between aerodynamicists and animal types but he's sure the hair is adding drag to the replica during flight. "Somebody ought to put some wave set on there or plaster it all down with goose grease," he says with a grin. Jex, of Systems Technology Inc., is an intense, loquacious engineer who specializes in the design of control systems, mostly on airplanes. He conceived the system that will control the replica in flight. He's still grumbling amiably as the pterosaur, its 18-foot span of wing locked in the nonflapping mode, is attached to the winch cable and lined up.

The winch whirs. Nearly 4,000 feet of nylon line, stretched across the field to a motor-driven drum, grows taut and then drags the reluctant reptile into the air like a kite. Everything looks good as the towline drops off. "I'm dropping the tail boom now," announces Morgan, and the apparatus falls away. Without a second's hesitation, the pterosaur pitches up, then tumbles violently down, and Morgan, realizing it is out of control, sends the radio command that releases the safety chute. One of the engineers starts sprinting across the field. The creature comes down none too gently a hundred yards from the launch site, breaking a wing and damaging some machinery.

"Every little detail has been difficult, grinding," Paul MacCready says a couple of Saturdays later. MacCready is the guiding wizard behind the pterosaur project. "Even every little feature of the tow device, things that you wouldn't think would take a lot of time. Every one of them has required debugging."

The crew is pretty sure that most of the damage in the pre-Christmas crash occurred in the air. The violent tumbling started because the wings were swept too far forward at the moment the tail boom dropped away. After many hours of additional "flight" testing with the replica attached to the roof of a moving van, the electronics have been reprogrammed to correct the problem. But now it's raining in Los Angeles and all available fields are too wet for a test.

MacCready: a man of many firsts

MacCready, 60, a soft-spoken aeronautical engineer, is the founder of AeroVironment, a research and consulting group in Southern California that specializes in fluid mechanics, environmental science and wind energy. He is also one of the most prominent figures among scientists and others who are interested in small-scale, energy-efficient and human-powered vehicles. He put together and led the teams that developed the *Gossamer Condor*, the fanciful, lightweight airplane which in 1977 made history's first controlled human-powered flight. (It is now on display at the National Air and Space Museum.) Other firsts followed: the *Gossamer Albatross*, which was "pedaled"

Designed from fossil evidence, an 18-foot pterosaur soars eerily above the arid hills of Southern California.

Color photographs by James Collison

Project director Alec Brooks (right) and electronics specialist Alan Cocconi operate on pterosaur's innards.

Tyler MacCready fixes clawed digits (below right hand) on wing. His father, Paul, is the originator of project.

across the English Channel, and the *Gossamer Penguin* and *Solar Challenger,* which were powered by photovoltaic cells (SMITHSONIAN, February 1981).

MacCready sees all of his projects as having some value as public-education props: to spark interest in the environment, natural history, the complexity of nature generally. He has admired scientific exhibits at least since the time when, as a youngster, he was kicked out of the Peabody Museum in New Haven, Connecticut, his hometown, for trying to pitch his cap onto the stuffed giraffe's head. "I'm trying to combine the good features of a museum and of a zoo," he says of the pterosaur project. "The zoo has only present-day creatures; the museum shows old ones, but they're dead."

Everybody gets excited about dinosaurs, MacCready muses. "You put a giant pterodactyl on the TV screen, or in the newspaper or a magazine, and it's just so exciting that people can't help but be interested in finding out more. And in this very positive way, you can get people turned on to learning more about pterodactyls, and how they relate to birds, and then they can learn about the great extinction of 63 million years ago, when all the big dinosaurs were wiped out—and their perspective is broadened."

If MacCready's impressive track record is any indication, the process of developing the replica is likely to have some practical implications for aviation, as well. Since the days of the Gossamers, says Alec Brooks, the director of the pterosaur project, "an awful lot of aviation technology has been developed that didn't exist before—lots of lightweight structures and low-powered airplanes that people wouldn't have believed possible 20 years ago."

Piecing together an old story

But the story of the pterosaur replica does not begin with MacCready. It goes back to the discovery in Texas 15 years ago of the crushed fragments of several large fossilized arm bones with exceedingly thin walls. When parts of individual bones were pieced together, it became apparent that they were from an immense reptilian wing. The man who found the fossils, Douglas Lawson, was a graduate student of Wann Langston jr., a prominent paleontologist and a professor in the Department of Geological Sciences at the University of Texas in Austin. Somewhat to Langston's dismay, Lawson gave the fossil's owner the larynx-kinking name *Quetzalcoatlus northropi. Quetzalcoatlus* refers to the Aztec serpent god; *northropi,* to the flying-wing aircraft developed in the '40s by aviation pioneer John Northrop (which, like the reptile, had no tail). The replica itself has been officially dubbed *QN—the Time Traveler,* to signify its link with the distant past.

The largest pterodactyls in the pterosaur family had

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Flapping model of pterosaur goes for a ride on top of van with Alan Cocconi in attendance. Movement of the van enables Cocconi to observe wings in action under near-flight conditions and make adjustments.

wingspans that were no longer than about 25 feet. With a wingspan of perhaps 36 feet, *Quetzalcoatlus* was almost 40 percent larger than any other flyer, living or dead. Part of the early speculation about it focused on the question of how animals that big could have flown at all. The power per pound needed to fly increases as a bird or plane gets bigger. Yet birds, like most animals, get *less* power per pound from their muscles as their weight goes up. The laws of both biology and aerodynamics, in other words, seem to have conspired to put *Quetzalcoatlus* at the extreme edge of the possibility of flight.

A decade after the Texas discovery, MacCready dropped in on Langston to see the fossils. No more bones of the giant reptile had turned up but a dozen much more complete skeletons—animals apparently identical to, yet only half the size of, the monster—had been discovered nearby. The additional fossils allowed more refined speculation about just what the big guy looked like.

It wasn't long before MacCready's file on the pterosaur was bulging with aeronautical information. That information gave him some insights into how *Quetzalcoatlus* might have flown and led him to conclude that a full-size model of it could probably be built. By that time, aerodynamic theory had advanced significantly and fantastically strong but lightweight materials such as carbon fiber and Kevlar, powerful but small servomotors, tiny gyroscopes, nickel-cadmium batteries and the like had all come into their own.

Over lunch with Walter Boyne, director of the Smithsonian's National Air and Space Museum, MacCready broached the idea of a replica. A working, full-size model of *Quetzalcoatlus*, he suggested, might be a dramatic addition to the museum's upcoming IMAX film *On the Wing*, a documentary about natural and man-made flying machines. Since an accurate replica would be a remarkable bridge between the two, Boyne liked the idea from the start and agreed to provide funds for an initial study by AeroVironment.

At a pterosaur workshop held on the campus of Caltech two summers ago, MacCready assembled an all-star cast of biologists, engineers, paleontologists, inventors and aerodynamicists, including people from around the country who had worked with flapping "biological" flight. One purpose of developing the replica, MacCready announced, would be to show that "what Man is doing with aerodynamics today isn't all that different from what Nature has been doing with aerodynamics for literally a hundred million years." During discussions of whether the replica could be built, the paleontologists heard abdomens referred to as "fuselages" and got updated on the mechanical side of animals—wing loading, airfoil design, control systems and other aerodynamic considerations. The aerodynamicists got a chance to ponder the feather as a

Michael Parrish is the editor of the Los Angeles Times Magazine. *He has been keeping up with the pterosaur project closely for nearly two years.*

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Extinct reptile flies again

Paleontologist Wann Langston positions replicas of wing bones to study the range of motion at joints.

Texas Memorial Museum, Austin

Pterosaur's fossilized wing bones are carefully chipped out of the rock at Big Bend National Park in Texas.

high-technology product. They also learned about the engineering limits of muscles and tendons as well as the flight-control capabilities of living things.

The conferees concluded that it was possible to build a replica, but they couldn't be certain it would be exactly like the living animal. The fossil record left too many unanswerable questions. Still, the current research of Wann Langston and paleontologist Kevin Padian of the University of California, Berkeley, had filled in many of the big blanks. For their part, the aircraft designers were confident that they could develop control systems that would solve the problems of flying something with no tail but a big head, an aerodynamically unstable arrangement that Alec Brooks describes "as like trying to fly an arrow with the tail feathers in front."

The engineers thought that, since *Quetzalcoatlus* must have been a great glider but a pretty weak active flyer, they could produce a flapping mechanism that would give enough propulsion for short periods of climbing. The paleontologists agreed that all this jibed with their vision of the creature's abilities. By December 1984, the aerodynamicists had made a couple of small test models and announced that all omens were still good. Johnson Wax, in Racine, Wisconsin, already the major sponsor of *On the Wing*, joined the Air and Space Museum to provide financial support. The project was on.

It didn't take MacCready and his AeroVironment team long to decide on their basic aerodynamic approach. The head could not merely be bolted on rigidly and considered a neutral party to the business

Langston's observations gave engineers the parameters within which to fashion mechanisms for the model.

of flight. Its position far ahead of the body and wings decreed that it either had to be part of the solution or it would most certainly be part of the problem. The engineers decided to have the head swivel, using its thin, perpendicular bill as the vertical rudder that is part of a conventional airplane's tail.

The clawed fingers were also to play a role. Pterodactyls are so named because the fourth dactyl, or finger, evolved to become the elongated main wing bone. Meanwhile, clustered together roughly halfway out on the wing, the other three digits retained their reptilian claws. The engineers decided that since bird wings have a cluster of feathers, called the alula, which can be raised or lowered to cause drag and help turn, the reptile's clawed fingers might work the same way.

Getting the wings to flap realistically was a special challenge. A bird's flight is both unstable and extremely subtle. As conditions change, the animal's computer —its brain—sends signals that alter its shape and movement. For humans, riding a bicycle amounts to roughly the same process. The rider constantly makes adjustments to maintain balance.

The keys, when it came to designing a pterosaur that would actually "fly," were an electronic brain and electric-motor muscles. The power source: six pounds of nickel-cadmium batteries, or enough for about five minutes of flight. "We're using electronics to get the motions we want, rather than having a complicated mechanical system," says Brooks. "If we want the wings to twist more while they're flapping, we just program it on a little chip."

Pitch control presented another tough problem. Without a tail and a tail's horizontal stabilizers, pitch —the state of levelness fore and aft—had to be controlled in a different way. Initially MacCready's team tried twisting the wings, changing the shape of the airfoil. But that wouldn't do it. The aerodynamicists became convinced that birds without tails mostly controlled pitch by sweeping their wings forward and back, changing the center of lift relative to the center of gravity. That's why a soaring bird will have its wings stretched out and slightly forward, while the same bird diving to catch a fish has its wings swept well back.

Early last year, the engineers built a glider with an eight-foot wingspan that could sweep those wings forward and back on command from an on-board autopilot. The autopilot got its orders from a gyro and a tiny wind-flow vane on the model, as well as from the pilot on the ground. The model started out with a standard airplane tail. As the engineers refined the workings of the autopilot, the tail got smaller and smaller. Eventually it was down to a four-inch span—essentially no tail at all. At that point, the glider would fly along and, recalls Brooks, "you could see the wings actively hunting back and forth, looking a little bit lifelike, balancing the plane."

In an artist's conception, a pair of *Quetzalcoatlus northropi* defend nest against powerful tyrannosaur.

Paul MacCready holds up meter to check wind speed before important series of test flights in January.

On the first flight of the day, creature comes in for landing. Tail boom provides stability; wheels help land.

After successful last flight (opposite), workers hurry to disassemble the pterosaur before darkness descends.

Meanwhile, in Texas, Wann Langston was manipulating his bones. He made plaster casts of wing and neck fossils of the smaller *Quetzalcoatlus*. He then made fiberglass models of the plaster versions, hung the "bones" from adjustable slats on top of a bookcase and moved them around until they seemed to be in the positions they held during life. Then, according to the way the joints operated, Langston found all the possible movements the wing could have made. He photographed the bones in various positions, made measurements and calculated roughly the effects of muscles and tendons. This information went back up to the engineers in California. At the same time, the engineers were sending Langston videotapes of the pitch-control test flights. Luckily, everything seemed to fit. "What they had done was to build a glider that could fly without a tail," says Langston. "About the same time, *we* discovered that the animal itself was capable of moving within the range of motion necessary to achieve the same result."

Next to be tackled was the movement of the bird from side to side. The engineers built a bigger model, with an 18-foot wingspan. This one had a rigid wing, since it would be used only to test the lateral controls, but the head could be turned from side to side. This big model was the first to be winched into the sky and since, according to Brooks, "it seemed a bit dicey" to launch it without the stability of a tail, the first detachable boom was rigged up. This model suffered a multitude of indignities. The first time its tail boom was dropped, it tumbled onto some power lines. Thereafter it always flew with a parachute. "We had *lots* of crashes with it," recalls Brooks.

MacCready's engineers persevered, however, and from Texas came further confirmation that they were on the right track. Langston had found that although the pterosaur's long neck seemed unable to move much, left or right, a decent ball-and-socket joint connected it to the head. That made it seem quite possible that the rudder action the engineers wanted was the way the real animal had actually used its head.

Making everything work together

Slowly a combination of systems was developed and tested to handle lateral control: the head turning; the clawed fingers, which can extend slightly on one side at a time, to lend drag to that wing and help turn; and wing twist, giving one wing lift—which brings it up—while the other drops. But making all of those systems work together was not easy. As 1985 drew to a close, the project was running behind schedule. After testing 15 different models, MacCready's people were still trying to get an 18-foot version to fly right and it was beginning to look as though a 36-foot model was

out of the question for the time being. Meanwhile, the IMAX crew working for the Air and Space Museum was waiting anxiously for a chance to film the creature on location in Death Valley. And some people in Washington were even beginning to wonder whether the replica would be ready for its scheduled appearance on the Mall in June to coincide with the premiere of *On the Wing*.

January 7, 1986, turns out to be less than an altogether handsome day for a test flight. The Santa Ana winds are up in Southern California. MacCready and his crew spend several hours looking for a field where it is safe to try out their model yet again. By midafternoon they are set up at El Mirage Dry Lake about 70 miles outside of Los Angeles. The first flight with the detachable tail boom in place is faultless. The next flight tests the pitch-control system, which has been substantially altered since the pre-Christmas crash. Ray Morgan drops the boom away smoothly and the creature executes a couple of sweeping turns before touching down. Whoops go up from the crew. This is the moment that separates triumph from tests. The pterosaur clearly will fly as intended, and will meet its deadline with the filmmakers. But it still hasn't flapped.

After Paul MacCready's son, Tyler, hurriedly makes a minor repair on the left wing, the reptile is once again carried to the takeoff position. Alan Cocconi, who is responsible for the electronics, stands next to MacCready. The light is fading fast now. If something goes wrong in the dark, the team likely will not be able to reconstruct the event. Morgan asks whether he should go ahead. In a flat, determined voice, MacCready says, "I think it should be flown."

The winch winds again and the pterosaur climbs as before. A gentle left turn and Morgan drops the tail boom. The bird continues sailing west into the sunset and now Morgan moves the flapping-control lever. The head begins adjusting to each gust and eddy. The wings start beating. Finally, silhouetted against the rosy night sky, the pterosaur comes alive.

For the first time, *Quetzalcoatlus* flaps its wings in flight without the tail boom and, more important, without mishap. Now that the 18-foot model is a success, MacCready is considering a 36-foot version.

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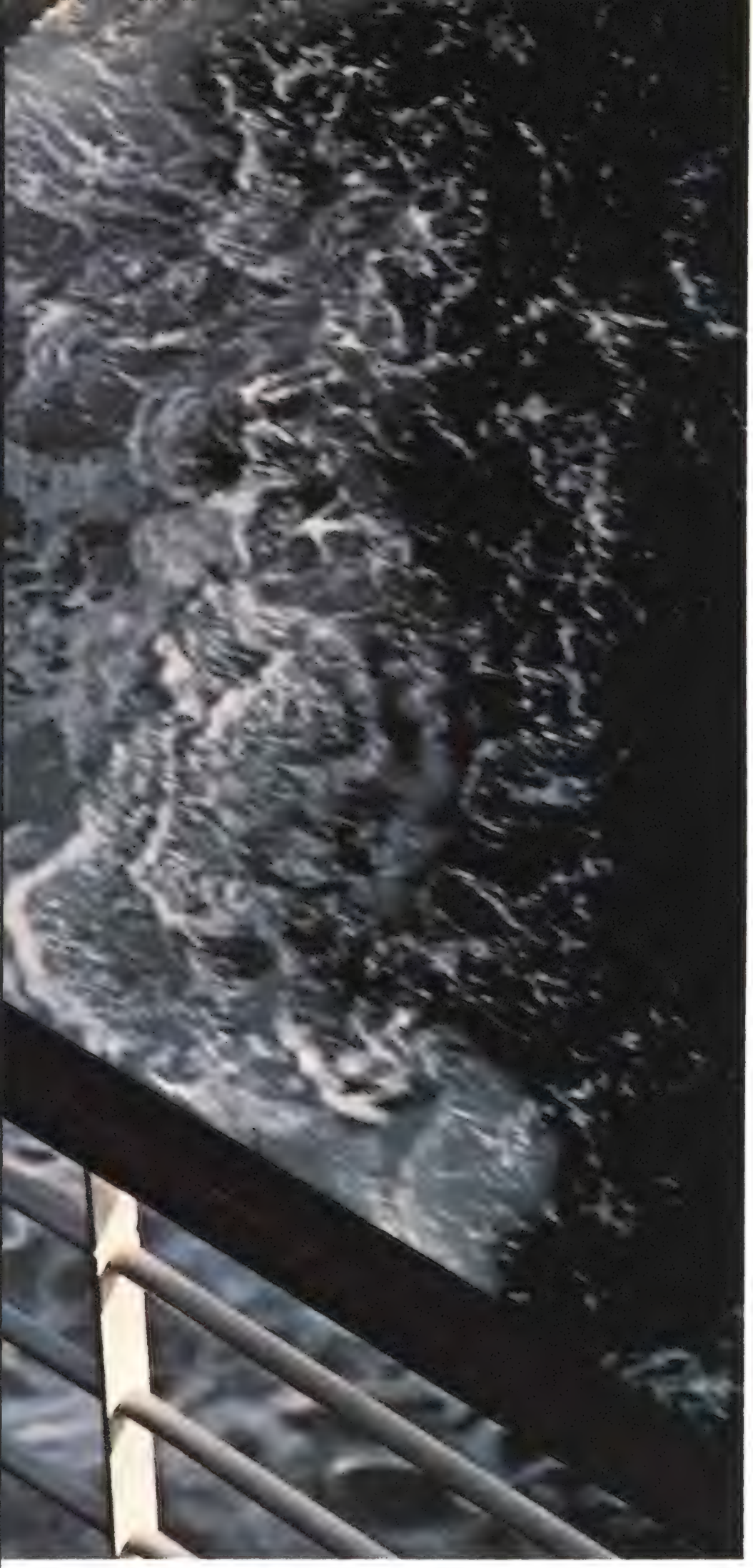

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By Richard Oulahan

Capital's doughty dowager becomes a new Cinderella

Reviled by critics, defended by admirers, barely escaping wreckers, the Old Executive Office Building survives—with panache

The War Department Library had suffered indignity of dropped ceiling, carpeting, enveloping draperies.

She is the indomitable dowager of Washington, D.C., an impressive relic of Victorian grandeur now making a triumphant comeback after decades of rejection and neglect. She has several times been threatened with the wreckers' dump heap, only to be reprieved in the 1930s by the Depression and the high cost of demolition, and again in 1961 by an abrupt return to popular favor sparked by the style-setters of the Kennedy administration. She is called the Old Executive Office Building (OEOB to her friends) but has been known as the State, War and Navy Building and half a dozen other names in the 98 years since she was created.

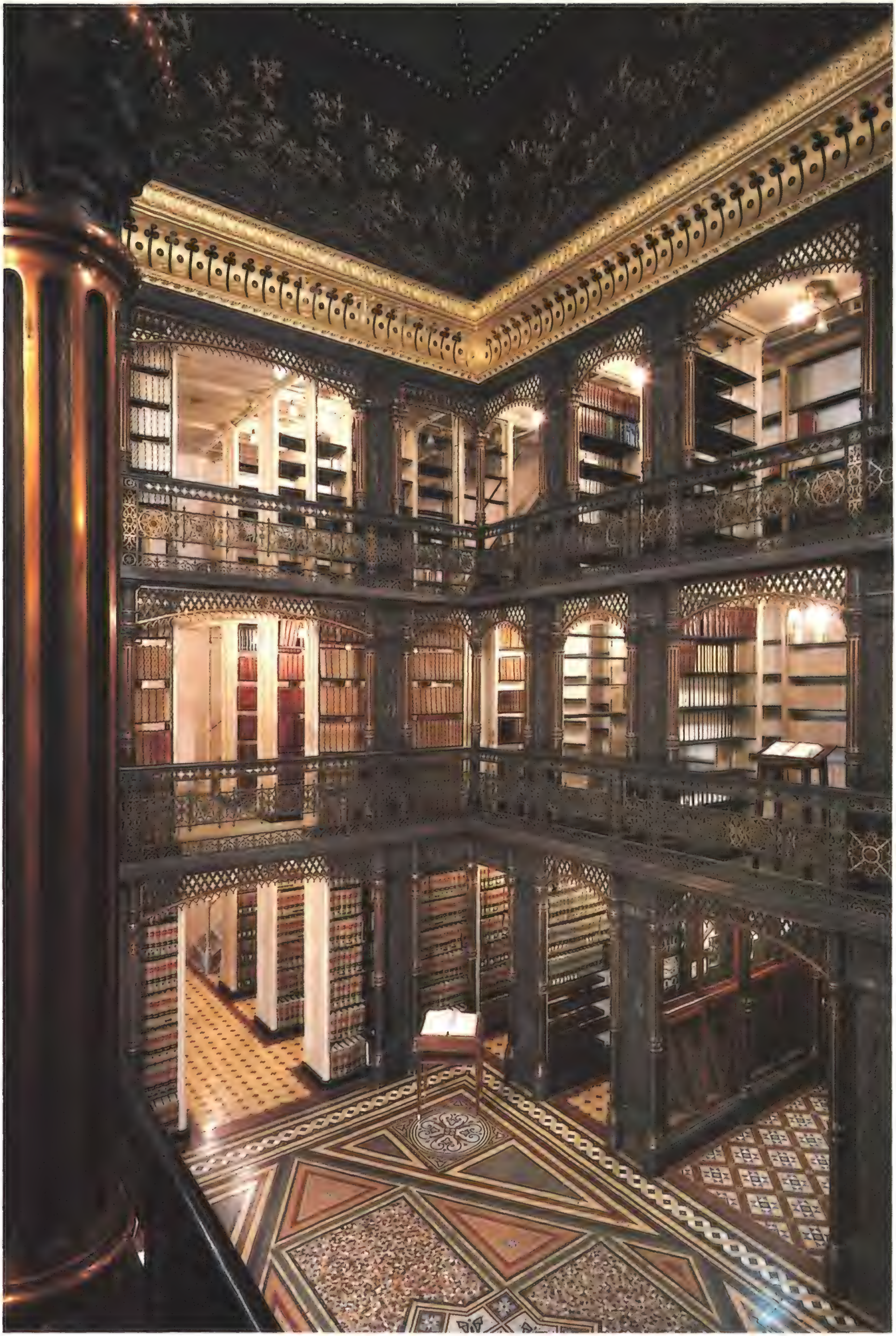
The present renaissance of OEOB began on a day in 1974 during the Ford administration, when John F. W. Rogers, an 18-year-old college student serving as an intern mail clerk at the White House, was sent next door to a storeroom at OEOB to get a chair. When he walked into the room, it was as though he had entered the tomb of King Tut or, more precisely, the castle of the Sleeping Beauty. The place was chockablock with crates, boxes, chairs and office furniture of all kinds, covered with dust and cobwebs. "It was filthy," Rogers remembers, "and yet I saw beauty." Under its grime, the room, once the War Department Library (opposite), rose three floors from a vividly colored tile floor to a frosted glass skylight, with ornate metalwork in Gothic, Baroque and Classic designs on the balconies and recesses for the empty bookshelves. "It renewed my interest in the place," Rogers explains—an interest that in time amounted to an obsession.

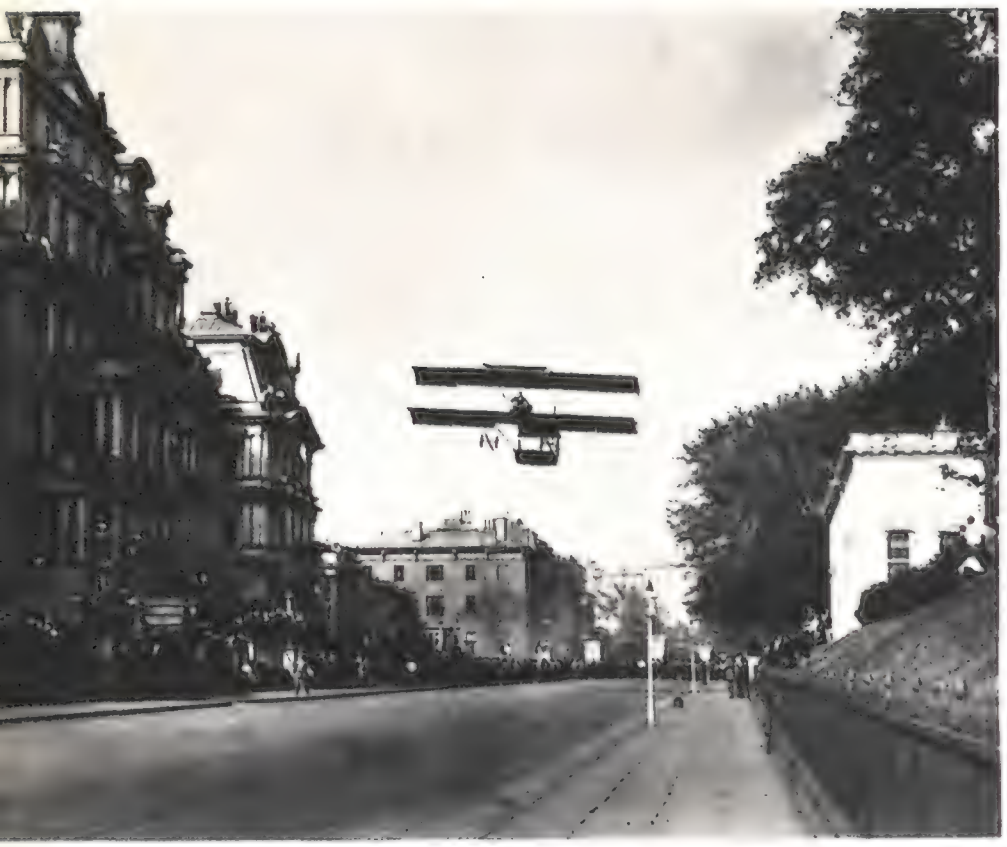
The building had first piqued Rogers' curiosity eight years before when he saw it during a Washington vacation. Back home in Seneca Falls, New York, he looked up the history of the grand old building in the local library. "I've been interested in architecture and design ever since I was a child," he explains. His concern for OEOB returned full force in 1981, when Rogers received a Presidential commission after earning his degree in public administration from George Washington University. He was appointed President Reagan's Assistant for Management and Administration, and, among his other duties, "I found myself responsible for the care of that building. I would take very seriously its preservation."

There was plenty to do. The War Department Library, where he had first been smitten with the OEOB's beauty, had been desecrated even more. A false ceiling had been installed, and carpets and draperies concealed the Minton tiles and filigree ironwork to make a space for the military communications staff. "It was grossly abused," declares Rogers. So, he discovered, were other once-famous rooms, among them the four-story State Department Library and the so-called Indian Treaty Room, as well as the coffered skylit domes and stained-glass rotundas surmounting the

Now the White House Law Library, it shows off fine Minton tile floors and elegant cast-iron tracery.

Color photographs by Walter Smalling jr.





In 1910, barnstormer Claude Grahame-White whizzed past OEOB for a landing on West Executive Avenue.

building's eight granite staircases. The Diplomatic Reception Room, the scene of gala receptions and Thursday "at homes" for the diplomatic corps at the turn of the century, had disappeared altogether, subdivided into offices. "First, we needed a curatorial function," Rogers says. He hired a young architectural historian, Mina Wright, to gather up documentary material scattered all over town and build an archive. Their research led from maintenance to restoration, and the Preservation Office was born. "We went into paint analysis, for example, so we could use the original colors. Painters, carpenters and other artisans from the General Services Administration [GSA] came alive. They would be able to really exercise their crafts." Corners were cut; many stencils are highlighted in bronze powder to simulate gold leaf. "But still, I was surprised at how little it cost: three libraries, the east rotunda and four domes have been restored for about $400,000, and that includes necessary maintenance." The OEOB has begun to look remarkably as it did in 1888, when it was completed.

The idea for a giant office building, housing three departments of government, came after the Civil War with the surging growth of the federal bureaucracy and need for more space. The site, a tobacco planter's farm flanking the White House, had been picked nearly three-quarters of a century before during the planning of the capital city, by George Washington, who felt that cabinet officers should be close to the President's house for convenient daily contact. The French Second Empire style was the idea of Secretary of State Hamilton Fish, the Hudson River squire and political dynast, who was authorized to supervise construction, and of Alfred Bult Mullett, the English-born Supervising Architect of the Treasury, who was persuaded by Fish to design the building. Both Fish and Mullett had been to Paris and had seen and admired the New Louvre and its Pavillon Denon, the archetype of Second Empire style, and Mullett became its principal advocate in the United States. When ground was broken in 1871, the Second Empire, with its steep mansard roofs and multicolumned facades set off by corner pavilions, was very much in vogue in America. But when the $10 million building was finished 17 years later, the style was as passé as Napoleon III, its progenitor. It was certainly not what Washingtonians had come to expect in their public buildings—not like its neighbors, the gleaming late-Georgian White House, or the Greek Revival Treasury Building. The vast edifice was greeted with dismay and derision and an outcry of "There goes the neighborhood!"

Over the years, critiques of OEOB have continued to be harsh or rapturous. "People either love it or hate it," says Mina Wright, the director of the OEOB's Preservation Office. Henry Adams called it "an architectural infant asylum" in *The Education of Henry Adams*. "The building was the worst I ever saw," snapped President Warren G. Harding. When he was assured that it was both fireproof and earthquake-proof, Gen. William T. Sherman reportedly replied, "What a pity!" (The same comment has been attributed to Presidents U. S. Grant, Theodore Roosevelt and Calvin Coolidge.) The building, complained Utah's Senator Reed Smoot, "is covered with gimcracks and spizzerinktums." It was "an architectural absurdity," in Herbert Hoover's view; "the ugliest building in America," according to Mark Twain; and "the greatest monstrosity in America," in the opinion of Harry Truman, who nevertheless refused to authorize its destruction.

On the other hand, OEOB has always had admirers who perceived it as a place of rare beauty. While it was still under construction, the Committee on Public Buildings and Grounds defended it as "an ornament to the city of Washington . . . second in architectural importance and beauty to no building in the United States." Secretary of State Cordell Hull wrote in his *Memoirs*, "Perhaps only two other buildings in Washington, the Capitol and the White House, evoke so much of what we call atmosphere, this awareness of the past."

Mr. Oulahan, veteran foreign correspondent and writer for Time, Life *and* People, *died a short time before this article went to press.*

Gleaming in the sunlight and solid as Gibraltar, the granite Second Empire structure was once home to State, War and Navy departments. The chimneys bespeak its construction before central heating.

Although Alfred Mullett resigned as the building's architect in 1874 after Benjamin H. Bristow, the Secretary of the Treasury and an outspoken critic of Mullett's design, revoked his authority to authorize payments to contractors, it remained Mullett's creation. Richard von Ezdorf, the émigré Austrian aristocrat who replaced Mullett, was born and brought up in Venice's ornate Palazzo Balbi, and felt completely at home among Mullett's gingerbread. He faithfully followed his predecessor's guidelines and planned most of the interior spaces, but the building was indeed, as Secretary of State John Hay put it in 1898, "Mr. Mullett's masterpiece." Mullett had committed suicide in 1890, after unsuccessfully suing the government for $158,450.91 in uncollected fees.

When it was finally completed in January 1888, the building was hailed as the largest granite structure in the world and America's largest office building. Statistically, everything about it is superlative. It has 1,572 windows—and used to have as many awnings until they were scrapped in the 1930s. There are 553 rooms, most of them with 18-foot ceilings, and nearly two miles of black and white marble corridors. On the facade are 900 columns and pilasters—enough to fit out ten Parthenons. Until World War II, a collection of artillery pieces, 29 cannon captured in battles from Saratoga to Santiago, Cuba, bristled all around the building, but in 1943 Secretary of War Henry Stimson ordered all duplicate cannon (several were pairs) to be melted down to help the war effort, and the rest were distributed among military posts and battlefield sites. Today two bronze Spanish cannon captured in 1898 and on loan from the Smithsonian Institution are in place at the Pennsylvania Avenue entrance as reminders of the time when the Army and Navy coexisted there before there was a Pentagon or a Department of Defense.

From the beginning the original tenants, the Departments of State, War and Navy, were uncomfortable bedfellows. The building was not even completed when a squabble erupted over the State Department's decision to close off the corridors leading to the south wing, its share of the building. Both the War and Navy departments objected, and the matter was referred to the Public Buildings and Grounds Committee for arbitration. Secretary of State Frederick T. Frelinghuysen explained that he had ordered the corridors partitioned off to prevent trespassing from the other departments: it was "too liable to be converted into a promenade by persons who have no present business to transact." Such intrusions, he said, would disturb "the quiet and privacy which are essential to the proper conduct of business in the Department of State." Secretary of War Robert Todd Lincoln objected to the walled-off corridors because they impeded air circulation and jeopardized "the health and comfort of the clerks and other occupants, and impaired their energies." Navy Secretary William H. Hunt concurred with Lincoln, diplomatic immunity was forfeited, and the walls came tumbling down.

The building was completed and tenanted piecemeal, with the State Department moving into the south wing in 1875, the Navy landing in the east wing overlooking the White House in 1879, and the Army occupying the west and center wings in 1888. When Hamilton Fish showed off his gorgeous Diplomatic

Even Presidents and Vice Presidents will sometimes be boys, as evidenced by signatures inside desk drawer.

Reception Room ("a sumptuous salon decorated in the Germanized Egyptian manner," one dazzled visitor reported) and his cathedral-like library with its Valentine-lace balconies, a game of one-upmanship was inevitable as the armed services prepared their own extravaganzas. The Secretary of War's office was walled in "Lincrusta Walton," an ersatz material simulating tooled Moroccan leather, and the murals on the ceiling were painted in more than 15 colors. The Navy's Library Reception Room was even more splendid, costing $55,645, the most expensive room in the building. It was adorned with French and Italian marble (including a slab, now lost, from the Temple of Jupiter in Pompeii) and Mexican onyx, and lighted by gasoliers held by four large bronze allegorical figures, designed by von Ezdorf. When Harry Truman moved the Presidential press conferences there in 1950, reporters noted the bronze figures and dubbed the place "the Cupid Room." Over the years the room has become known, for no apparent reason, as the Indian Treaty Room. As President Reagan put it, "This being Washington, it would be no surprise that the room that witnessed the birth of the International Monetary Fund and the signing of the treaties of peace with Bulgaria, Italy and Romania—but never any Indian treaties—is known as the Indian Treaty Room."

Perhaps the theatrical Diplomatic Reception Room was the inspiration for several attempts to deck out the American Foreign Service in fancy uniforms when on duty. The design for one such Graustarkian livery was submitted to Elihu Root, Theodore Roosevelt's Secretary of State. Root testily scrawled his own fash-

Personal memorabilia, official clutter surrounded Theodore Roosevelt, Assistant Navy Secretary in 1898.

Architect Alfred Mullett delighted in building's chiaroscuro effects.

Mina Wright, John F. W. Rogers, Chris Hicks are restoration team.

Hamilton Fish, cosmopolite Secretary of State, selected Mullett for the job.

ion note across the design,"Add mistletoe pinned to coat-tail. E.R." The monkey suit was not adopted.

"The OEOB is a national treasure," says Vice President George Bush, the most prominent tenant of the building today, "both in its architecture and in the historic role it has played." More than 1,000 treaties have been concluded there, among them those with Panama, Costa Rica, Nicaragua, Colombia, and the United Nations Declaration, signed in 1942 by Cordell Hull and the representatives of 22 other nations. The Spanish-American War began there in 1898, when Secretary Hay handed the Spanish Ambassador his credentials and passport, and ended there three months later, with the signing of an armistice by the French Ambassador on behalf of Spain.

In 1919, when the Treaty of Versailles was signed, its voluminous text was cabled to the OEOB in installments. My grandfather, Richard V. Oulahan, chief of the *New York Times* Washington bureau, realized he could not possibly transmit it to New York with the facilities at his command in time for the next day's editions. He rented Western Union telegraph lines to supplement those in the bureau and dragooned his entire staff, from senior correspondents and photographers to secretaries and copyboys, into a sort of bucket-brigade relay team trotting back and forth between the OEOB and the *Times* offices with the cabled takes. The full treaty was delivered on deadline and appeared in an overweight *Times*, true to its role as the newspaper of record, the next morning.

The United States did not formally enter World War II until the declaration by Congress December 8,

For reasons no one can fathom, grand Reception Room of Navy Library is called Indian Treaty Room.

1941, but it effectively began in the OEOB the day before when an infuriated Secretary Cordell Hull confronted Japanese envoys Kichisaburo Nomura and Saburo Kurusu with the news that their country had attacked Pearl Harbor while they were pretending to negotiate peace in the Pacific. The redoubtable Hull, incensed by the Japanese chicanery, is said to have given the ambassadors a tongue-lashing and sent them packing. At the end of the war, both the Truman Doctrine and the Marshall Plan, aiding the devastated nations of Europe in their economic recovery and political stability, were framed in the OEOB.

The roster of famous men who have worked and made history in the old building is like a roll call of American statesmen of the past century. Seven future Presidents were stationed there before they rose to the highest office—both Roosevelts, who were Assistant Secretaries of the Navy; William Howard Taft, who served as Secretary of War; Herbert Hoover, chief of post-World War I Allied relief operations; Dwight D. Eisenhower, who was military aide to Army Chief of Staff Douglas MacArthur; and Vice Presidents Lyndon B. Johnson and Gerald Ford. Every Vice President since Johnson has been headquartered there.

Flower urns, marquetry and graffiti

Possibly the best-known inhabitant of the building (and certainly the favorite of the press) was Eddie Savoy, who came to the building in 1875 as Hamilton Fish's page. In his time Savoy mixed eggnog for William Jennings Bryan's diplomatic receptions, became majordomo to half a dozen Secretaries of State, and was retired in 1933 after 64 years of government service at a ceremony presided over by President Franklin D. Roosevelt. Savoy was the only real character in the only novel ever written with an OEOB background, *Murder in the State Department,* by John Franklin Carter. After his death in 1946, a Liberty ship was named in his honor.

Many tenants have left their marks on the building. Capt. Douglas MacArthur, who was briefly the building supervisor in 1913, added the large Grecian flower urns, which are still in place at the Pennsylvania Avenue entrance. Vice President Bush looked under the carpeting in his office—and uncovered a marquetry floor made of three kinds of wood, now exposed in all its splendor. Bush also found, on the inside of a drawer in his desk, the carved signatures of half a dozen Presidents and Vice Presidents who have used it. Another kind of graffiti was left by 3,000 troops who marched in William McKinley's second Inaugural parade and were bivouacked in the OEOB corridors. The damage they caused resulted in an executive order that the building was never again to be used as a barracks.

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It was the portly Taft who ordered the installation of brass handrails on the banisters after he took a fall on the curved granite stairs. It was also Taft who, as President, kept a pet dairy cow, Pauline, on the south lawn of OEOB from 1909 to 1913.

Telephone and telegraph lines were installed in the building in the 1880s by the Army Signal Corps. Later, electricity was introduced to the building, and by 1913 the 6,000 gas jets were extinguished for all time. The three Secretaries had full bathrooms, including tubs, in their suites, which provoked considerable snickering comment about setting up housekeeping. That may have been the reason Vice President Nelson Rockefeller furtively moved an expensive set of dining-room furniture into his offices at night to create a private dining room. An elevator operator witnessed the move, though, and the news soon spread all over Washington.

Having outlasted many vicissitudes, State's splendid library became White House Library, Research Center.

For no clear reason, the Navy kept a rooftop "time ball," a device that marked the hour of noon each day by dropping a black ball on a rod, in the manner of the New Year's Eve celebration in Times Square. After half a century, the practice was discontinued in 1936, and the ball retired with a dull thud. There was just one telephone inquiry to indicate that anyone had noticed. Many of the infamous Nixon tapes were recorded in the OEOB, and throughout his term Richard Nixon kept a hideaway for himself in Room 174. The only reminder of General Pershing's tour of duty in the building was a bronze plaque—now lost—he had had placed on a wall, commemorating the services of the 243,125 horses and mules that served in France with the American Expeditionary Force in 1918.

An early superintendent of the building, George W. Baird, decreed that all window shades should be uniform green-and-white stripes, set at precisely half-height by day's end. When he became President, Teddy Roosevelt checked the window shades each morning from his White House office across the street, and if a single shade deviated in the slightest the supervisor heard about it at once.

At State, a well-tempered Gibson

Hugh Gibson, the urbane diplomat who served for a time at State, invented, with the help of a bartender at the nearby Metropolitan Club, the version of the dry martini that bears his name. At diplomatic receptions in the OEOB it was served to its inventor as his second round of drinks: the original Gibson was nothing more than plain water, identified by its pearly pickled onion, to make certain that Mr. Gibson would not become undiplomatically tipsy.

Maintenance of the vast building has always been a formidable task. In 1899, in an effort to cut costs and speed up the nightly cleaning, a Rube Goldberg scrubber was introduced. The machine, with two large rotary brushes, could be shoved along by two or three women through the two miles of corridors, polishing off the job in the time it would take eight or ten on their knees. The building force of charwomen (who had received a princely raise from $15 to $20 a month) perceived the contraption as a threat to their jobs, which indeed it was, and brought what has been described as the first strike against the federal government. The mechanical scrubber was thereupon scrubbed, and peace returned to the night corridors.

From the time of Robert Lincoln's open-door policy, ventilation was a problem. During the First World War, when the building's population burgeoned to an

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Glowing as it did in 1897, stained-glass skylight surmounts a coved frieze of gilded stylized plants.

all-time high of 4,500 and offices spilled out into the hallways, the air-circulation problem became so serious that everybody in the place was marched outside twice a day for a "hygienic breather." Through the humid Washington summers it was the custom to replace the heavy wooden doors with slatted, swinging saloon-type doors that would increase the air flow. One day in the midst of World War II, a clerk in a hurry slammed through a swinging door, right into the face—and cigar—of Winston Churchill, and sent him sprawling. The Prime Minister was gracious about the incident, but the next day an order came down from the White House for the removal of the swinging doors and banning them for all time.

In 1947 the State Department, last of the original tenants, moved out, and the old building soon became the Executive Office Building, an extension of the White House. A new cast of tenants moved in—the Office of Management and Budget, the National Security Council, the Council of Economic Advisors, and then the Vice President. In the basement, the GSA had its shops, prepared to furnish the White House with anything from a new paint job to ice cubes.

Still, the old lady's troubles were not over. Under the Eisenhower administration, tighter and tighter budgets persisted while her deterioration continued. A demolition order was decreed, but before it could be carried out the administration changed, and John F. Kennedy, on the urgent advice of artist and connoisseur William Walton, reversed the death sentence. In 1962 the GSA gave the building a scrubbing, washing away the grime of 75 years and giving the OEOB an altogether brighter appearance. In 1971 the building was entered in the National Register of Historic Places. And finally, in this decade, restoration began.

John Rogers went to the Treasury Department in 1985 as Assistant Secretary for Management, where he will begin the restoration of that building. Christopher Hicks, his successor at the White House, and Mina Wright continue to supervise the restoration. They have received some unexpected help. When it became known that there was no money to purchase the gold leaf needed for various projects, M. Swift and Sons, a manufacturer of gold leaf, and Alfred Mullett's granddaughter stepped in and helped out.

The War Department Library where John Rogers first encountered the Sleeping Beauty has undergone restoration work. The State Department Library, now fully restored to its former glory, has returned to its original purpose, becoming the White House Library and Research Center, and its War Department counterpart houses the White House Law Library. The Indian Treaty Room is again used for formal receptions and for White House award ceremonies. All of this can be admired by visitors on Saturday morning tours with reservations made through the Preservation Office.

A leading architectural firm, retained to evaluate the building, pronounced it "a treasure." A nameless critic is quoted as saying that to destroy OEOB would be tantamount to the Egyptian government razing the pyramids. As one admirer put it, "The building has all the requisites of a great aunt. She is neither very pretty nor elegant, but she has enduring qualities of character." And as she approaches her hundredth birthday, it seems very likely that the Old Executive Office Building will endure for at least another century.

No two of the eight massive spiraling staircases that connect the OEOB's five floors are exactly alike.

One of the many examples of Ford's attention to detail is the cargo restraining net on the LX. It helps keep grocery bags from tipping over and loose packages from sliding around.

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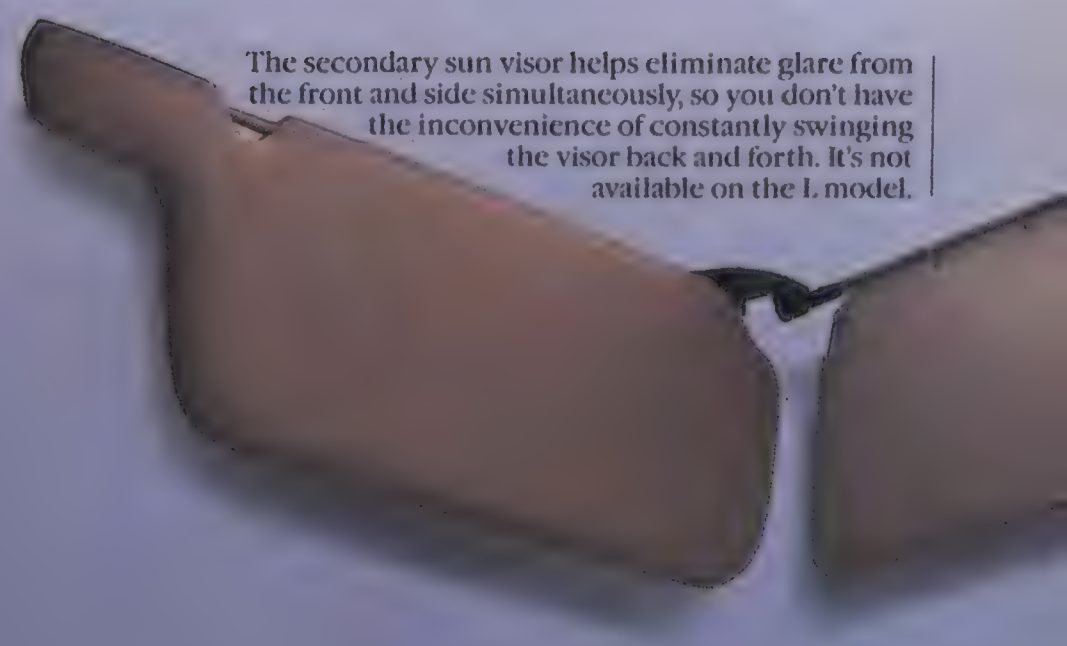

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By Dan Hofstadter

François Boucher: he summed up the lives of aristocrats

During the years that were a prelude to the French Revolution, this artist painted exquisitely the delights of a doomed society

Looking at François Boucher's paintings of the female nude, overwhelmed by their voluptuous intimacy, we seem to feel that we know almost everything about him. On closer inspection, though, we discover that we know almost nothing. He lived from 1703 to 1770, his adulthood coinciding very nearly with the reign of Louis XV. The son of a Parisian artisan and painter, he was a bustling, big-nosed man known for his witty repartee. Running a large studio with the help of several pupils, he worked about 12 hours a day. He seldom went out in the evenings, but when he did it was often to the salon of Madame Geoffrin. She was a brusque, sensible woman, the daughter of a valet, who had married the wealthy inventor of a process for the industrial production of ice cream. With her newfound wealth she had opened her drawing room to men of science and the arts. There Boucher probably met many of the *philosophes* of the Enlightenment: Voltaire and d'Alembert, Helvétius and Fontenelle—perhaps even the encylopedist and philosopher Denis Diderot, who would put aside his labors now and then to blast Boucher's painting.

In his early thirties Boucher married a beautiful girl named Marie-Jeanne Buseau. She often appears, it is said, in his drawings. People have always assumed that he led, even after his marriage, the life of a rake; yet aside from the difficulties this would have entailed for a man who worked 12 hours a day, no evidence survives of any specific liaisons. That most chroniclers of the period have supposed that Boucher was a sort of

Mr. and Mrs. Jeffrey E. Horvitz, Hallandale, Florida

An often-overlooked period in Boucher's work is represented by this early depiction of peasant life.

Lothario-with-a-brush—even that he "seduced" the nymphomaniac Duchess of Chartres—says less about him than it does about their way of seeing his work. It is time we had a fresh look at the paintings.

That is why the decision of the Metropolitan Museum to play host this year to a large exhibition of Boucher's work, initiated by the Detroit Institute of Arts and jointly organized by it, the Metropolitan and the Réunion des Musées Nationaux de France, is espe-

Le repos des fermiers was painted shortly after his return from Italy and shows considerable influence from Italian and Dutch painting. It is less artificial, closer to observed reality, than his later pastorals.

cially welcome. Boucher dominated the art of the reign of Louis XV—the "Louis Quinze period," as we have come to call it. He was not only a superb painter but also a fine draftsman and engraver, and a designer for the Sèvres china factory and the Beauvais and Gobelins tapestryworks. More than 80 of his paintings and a number of tapestries and porcelains executed after his designs will be on display in New York from February 22 to May 4, after which the exhibition will travel to Detroit, where it will be on view from May 27 to August 17 before going on to Paris.

Like his predecessor Jean-Antoine Watteau, many of whose paintings were shown at the National Gallery of Art in Washington in 1984, Boucher was deeply interested in the life of the French theater, whose forms were just then maturing into those we know today—the melodrama, the comedy and so forth. In Boucher we can follow the transformation of Wat-

Nelson-Atkins Museum of Art, Kansas City

A favorite mythological subject of Boucher's, *Jupiter in the Guise of Diana Seducing Callisto,* offered him full opportunity for displaying his great talent and keen eye for portraying the voluptuous.

teau's pictorial ideas into a new manner marked by a fondness for extreme theatricality. More artificial than Watteau, more decorative, more overtly erotic—his odalisques are perhaps the most torrid ever portrayed on canvas. Boucher represents the historical style we now call the Rococo. Very possibly he had more inborn talent than any other painter who has ever lived. He studied painting for a mere three months in the studio of François Lemoyne before starting a career of his own; he claimed to have learned nothing whatever from the great Italian masters. By the age of 20 he was a fully trained painter; by 30 he had been elected to the Royal Academy of Painting and Sculpture. Soon after his election he was appointed to carry out a very important task—to help in the decoration of the Queen's apartments at Versailles.

It was proposed that he paint four insets, the subjects being Prudence, Fidelity, Abundance and Charity. Queen Marie, a plain Polish princess seven years older than Louis himself, was passably prudent by all accounts, and faithful if only by default; she had no energy to indulge in infidelities, being addicted to antiquated card games. Abundant she also was—she bore the King ten children—and during her long confinements she found many occasions to plumb the depths of her charity. For it was then that the King took three of the de Nesle sisters as mistresses, one after the other; these were the "Favorites" whose repulsiveness was so gleefully celebrated by the Marquis d'Argenson, the court's most venomous diarist.

Not until 1744 did the King decide that a brilliant and beautiful woman might make him a better consort

Thyssen-Bornemisza Collection, Lugano

This intimate view of an elegant lady's toilette is entitled *Woman Fastening Her Garter, with Her Maid.* It is not known whether it is a portrait or simply a boudoir scene, but the lady's personality is clear.

than a dull and unattractive one. His choice was Mme le Normant d'Etioles, who is better known by the title he later gave her: the Marquise de Pompadour. It seems that Madame de Pompadour had from her earliest days set her sights on becoming the King's mistress. She lived, Dianalike, in a château in the forest of Senart, and whenever the King went hunting there she contrived to cross his path in her blue phaeton, which she drove like a charioteer. She looked intriguingly chic, and he sent her presents of game; soon the pair were arranging têtes-à-têtes. The proclamation, in 1745, of Madame de Pompadour as the King's *maîtresse en titre* was a boon for François Boucher. It is not that she actually "discovered" him, for he had been receiving royal commissions for some years, but rather that she offered wider scope to his talent. The Pompadour was a woman of strong character and well-formed tastes, and under her aegis Boucher was to supply painted panels and schemes of decoration to rooms in Versailles, Fontainebleau, La Muette, Choisy and Crécy.

Boucher painted many different sorts of pictures and absorbed many influences, yet in the end his esthetic lineage tells us little about him. All is transformed by his sensuality and humor and craving for theatrical effect. At first he specialized in conventional though brilliantly composed examples of the *bambochade,* a genre featuring picturesque (and sometimes riotous) peasants with assorted animals and children.

The author, a New York writer and painter, has written for The New Criterion *and* The New Yorker. *This is his first appearance in* SMITHSONIAN.

Painting the delights of a doomed society

By degrees, however, he mixed this picture type together with several others, such as the "amorous encounter" and the *fête galante*, until he arrived at a suave synthesis sometimes known as the "painted pastoral." Despite the name, by no means all of these pictures show shepherds and sheep; but whatever their cast of characters they all produce the impression of idyllic rusticity.

Nowadays we may find it hard to enter the world of these delicate little scenes. It is the shepherdesses in hooped skirts and ribbons, the shepherds in velours, the pomaded sheep, who unwittingly bar our way. The painted pastoral seems such a very *literary* contrivance —somebody trying to do for Fontenelle's bucolic verse what Poussin did for Vergil; except that for Vergil we are willing to suspend our disbelief, whereas poor Fontenelle only provokes it (or would provoke it, rather, if we bothered to read him anymore). We feel that Boucher offers only "false pastoral"; we'd much prefer the down-to-earth "country" to "the countryside," the "sheepherder" to the "shepherd."

In scrutinizing Boucher's paintings I've come to suspect that much of our skepticism toward his subject matter is really a misplaced response to his manner of handling color and paint. Yet there is a real sense in which his paintings can seem lost to us—sealed forever in the ancien régime—simply because his subjects aren't credible. We are bothered not exactly by their lack of plausibility—the Old Masters, after all, are full of unlikely situations in which we want to poetically share—but by their lack of believability as fit subjects for art. Where is the salt of truth in all this manicured acreage, we wonder. Who cares about peasants who never shed blood, sweat or tears?

It may help us to understand Boucher if we consider for a moment the work of one of his best friends, the playwright Charles-Simon Favart. The kind of theater that Favart went in for had its roots in harlequinade and low-life comedy. Such entertainments, which proliferated in the neighborhood of Saint-Germain-des-Près, had for a time been under a terrible stricture—the actors were not allowed to speak! Dramatic culture, speech itself, was regarded as belonging only to companies chartered by the Crown; the "illegitimate" theater had to content itself with mime. When, under Louis XV, the comedians of Paris were again allowed to open their mouths, what came out was a long-suppressed giggle and a stream of unbroken impudence. Oddly enough, however, that impudence was uttered in a sort of code, for there were royal spies and Jesuits everywhere, ready to report on the slightest upsurge of impiety or lèse majesté. Under these conditions the pastoral, or rustic skit, became a useful convention for actors, because the censors didn't much care what came out of the mouths of bumpkins. The pastoral also allowed playwrights like Favart to experiment with new and more "enlightened" notions about the birds and the bees, to leave an innocent lad and lass alone together in a "shady grove" and see what would develop. "False pastoral" was in a way even more useful: the gussying up of farmhands and milkmaids as little lords and ladies afforded countless possibilities for surreptitious class mockery.

Barefoot shepherdesses in silk

The point is this, that when Boucher started putting "false pastoral" on canvas he was depicting not so much an ideal rural world as an actual one that already existed in the theater. His pictures were the opposite of insipid; they had sparkle and bite. Consider how people must have responded to a little Boucher shepherdess in silks and satins and powdered chignon who nonetheless goes barefoot. In those days no well-bred female ever left her bedchamber unshod; it would have been, among other things, too sexually provocative. When in the mid-19th century people like the Goncourt brothers—the famous diarists—rediscovered Boucher, they at once understood the significance of his friendship with Favart. "They're as alike," wrote the Goncourts, "as two peas in a pod. The *comédie-vaudeville* is as little concerned with truth as decorative painting. The attraction of both lies in their discreet license; both prettify reality in order to excite desire. Boucher adds dimples as Favart adds [sexual] 'allusions.' " It is indeed a strange truth: at the same time that Boucher offers us woman as a comestible, he also celebrates her sexual strength. Not for nothing was he the painter of Madame de Pompadour.

The age of the Pompadour was also the great age of make-believe—and of makeup as well. Never before had so many honest women gone about with so much

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The Metropolitan Museum of Art, New York

With its pudgy cherubs and balmy ambience, *The Shepherd's Idyll* is Boucher at his romantic best.

paint on their cheeks. All sorts of vegetable dyes and aromatic resins were imported from the Indies, and pistachio wood, a yellowing agent, was shipped in by the ton from the Amazon jungles. A point for languid contemplation was provided by the beauty spot: in the four hours required by milady to make her toilette, a clever artist could actually have completed her picture in watercolors or pastels. This curious situation—that every Frenchwoman of fashion was required in effect to execute her portrait upon her face every time she went out into society—affords a clue to the perplexities that befell the art of painting during the reign of Louis XV. No Parisian of the period could have remained unaware of the dangers of the face-painting craze: white lead, for example—the pigment normally used for the priming of canvases—was being applied so freely to the female countenance that many women died of blood poisoning until the King's physician denounced the practice.Yet the white faces and the white, powdered coiffures suggest to us subtler and more widely social perils. There was something lunar about them, something that hinted at scrofula or leprosy or the worse shame of premature senility. It was as if the noble old races in their *hôtels particuliers* had em-

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Musée du Louvre, Paris

One of his rare interiors, *Le déjeuner* is thought by some experts to be a self-portrait with his family.

barked upon a carnivalesque parody of their own eventual enfeeblement and ruin. Not 30 years before, the Sun King had died; already it seemed as if the moon were in ascendancy, and the arts—especially the art of painting—illumined with a queer reflected light. It was, in the end, perfectly in keeping with the spirit of the age that Madame de Pompadour lavished favors on so seemingly frivolous an artist as François Boucher.

One of the strangest characteristics of Boucher's work is its tendency to melt in the mind. It does not, like most great painting, preoccupy the thoughts of artists and amateurs; once away from it, they forget it, as people forget the purely physical sensations of pleasure or pain. Reminded of Boucher, they shake their heads; his roseate nudes and rowdy cupids seem only the expression of a debased sensibility. His contemporary Denis Diderot had this to say about his compositions: "The depravation of the taste, of the color, of the characters, of the facial expressions, of the drawing, have followed step by step the depravation of our domestic customs. What really do you expect that this artist should throw upon his canvas? What he has in his imagination, of course. And what can be in the imagination of a man who spends his time with harlots of the lowest order? . . . I defy you, reader, to find in all our hills and dales one tuft of grass that looks anything like what you find in his pictures! I daresay that Boucher has never actually *seen* nature for a single instant. . . . All his compositions create as it were an unbearable *din*; he is the greatest enemy of silence I know." Diderot here imagines that the man he has deduced from the pictures, plainly a debauchee, is the flesh-and-blood man who has painted them. He is treading on thin ice, for there is, as we have seen, no confirmation of Boucher's alleged depravity. Diderot couches his criticisms of Boucher's work in moral terms; yet those terms are in a way felicitous. For over two centuries French writers, even highly sophisticated ones, have enlisted somewhat similar metaphors. Boucher's studio was "a boudoir"; his art was "mendacious" or "insincere"; "he only wanted to seduce." The word seduction recurs in appreciations, in reviews; people who don't care a straw about Boucher's morals seem to resent the peachiness of his subjects, the coquetry of his colors, the way his brushstrokes skip across the canvas in perfect little glissandi. Yes, these critics seem to be saying, it is all terribly charming; but it is *charming in the wrong way.*

Looking recently at a grisaille sketch for his *Venus Asking Vulcan for Arms,* I found myself wondering how much of his notion of painting is actually retrievable for modernity, for the modern sense of urgency. Unlike Rubens, his esthetic grandfather, he doesn't work his figures up to the expression of some richly suggestive action; he unfolds them rather, as one might a string of paper dolls. The human figure becomes a decorative unit like a tapestry flower or a bird; its limberness or ductility is used not to express feeling but simply to create variety. In earlier, high-Baroque painting, every religious or mythological episode is transparent: the shapes and colors spin a palpable metaphor for some aspect of the human condition. In Boucher, by contrast, the pageant becomes opaque; the poses of his sylphs and cupids are gorgeously looped and festooned together without ever adding up to an emotional sum.

Decorations as fine art

There is something extraordinary about Boucher's fondness for luxe and adornments. Most merely decorative painters have been people who couldn't achieve a convincing pictorial effect, or who never wanted to do anything but decorate in the first place. Boucher, though, had such superb pictorial skills that his frequent application of his facility to a lower form of art seems drolly perverse, yet also modest and nonchalant: a sportsman laughing off compliments. Though he was too thoroughly bourgeois to grasp any of the grand old themes of his art, one can see why the feudal

nobility plied him with commissions: he had about him an air of aristocratic power-in-reserve. Sincerity is as little to be expected from Boucher as it is from some bewigged and titled ambassador.

The French have always regarded sincerity as an idea all their own, which would probably come as a surprise to most Americans. Perhaps the finest contribution to the French "literature of sincerity" is the novella *Rameau's Nephew* by Boucher's antagonist Denis Diderot. The little book consists of an imaginary dialogue between an obscure nephew of the composer Rameau and a gentleman much like Diderot himself. Rameau's nephew sees life as a succession of vaudeville acts; he plumes himself on being able to wear any personality that suits his immediate purposes. His conversation partner, a man of good faith, stands his ground; every adult, he insists, must one day arrive at a finished and practicable identity. As you read the novella you can feel that Diderot sympathizes with the gentleman, and in the end he makes him win the argument; but Rameau's nephew steals the show. He is so mercurial, so beguiling, so shamelessly hammy, that he's much more fun to listen to. As a painter Boucher is a little like Rameau's nephew, which is probably just what Diderot disliked about him. Boucher flouts the code of honest execution that every painter intuitively understands. His work is like a thesaurus of all the delinquencies that were to plague the worst of modern French painting: the false radiance, the highlights scattered like confetti, the flashy brushwork, the easy compositional formulas, the impossibly saturated color, the endless reliance on the same few saccharine harmonies. Yet we are spellbound by the smoothness of the whole performance, not in spite of its emotional inauthenticity, but—to a degree, at least—*because* of it. Boucher gets so much legerde-

Musée du Louvre, Paris

A bower of classical stone forms the setting for a popular literary theme, *Rinaldo and Armida.* The painting was his entrance examination, required to secure full membership, for the Royal Academy.

Musée du Louvre, Paris

Boucher was favored by Madame de Pompadour, the King's mistress. He painted her a number of times.

main going in any one picture that the tricks themselves turn into high entertainment. A painting by Boucher is often like one of those old marionette plays in which all of the puppets' lies come true.

If Boucher did not see art as the practice of virtue, neither was he without a certain power of affectionate observation. Integrity is a terrible thing to have to fall back on, but our painter on occasion did just that. Boucher would take up a genre, try out a few pictures in it, and toss it aside only because other artists were painting things somewhat similar; it's a great pity that he forsook the Dutch-type interior-with-figures after he saw what Chardin could do with it. Boucher painted three perfectly straightforward interiors, *La marchande de modes*, *Le déjeuner* (p. 106) and *Woman Fastening Her Garter, with Her Maid* (p.101), all of which are superb examples of the genre. There is nothing in all art quite like his gartered courtesan with her knees far apart and a kitten playing between her ankles. The flickering tones of the costumes, the glass doors, the mirrors, the Chinese screen, all contribute to the illusion of an expansible, concertinalike space.

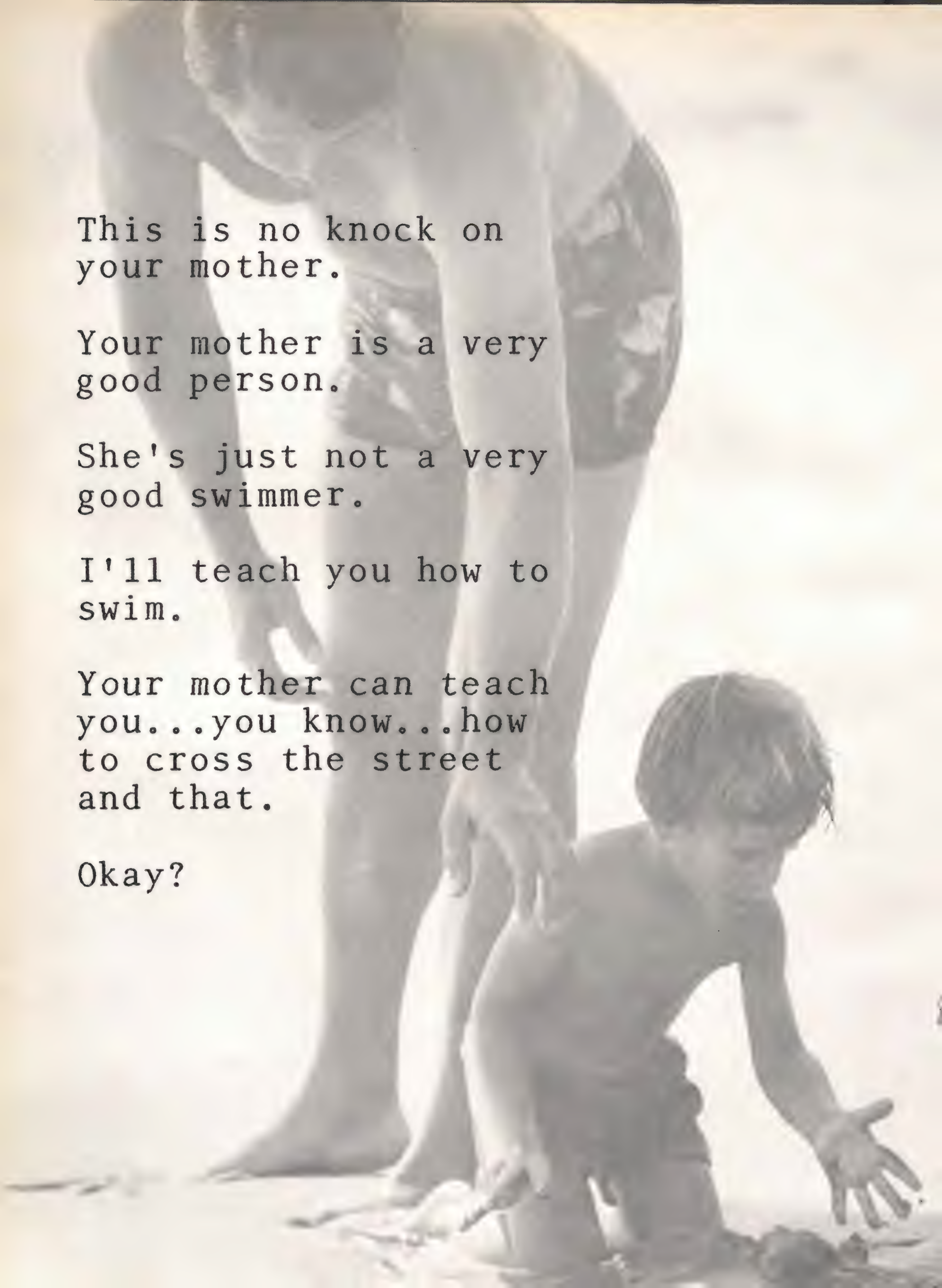
One expects from the life of François Boucher a moment of climax, of high drama, when he will paint the Pompadour. He did indeed create her likeness in several portraits. In the one he painted in 1759 now owned by the Victoria and Albert Museum in London, the results are disconcerting. She looks remote, unknowable, sinking—as into quicksand—under the folds of her gown. And yet, and yet—so much of Boucher's lifework seems an exhalation of her spirit and her fragrance. His art is essentially a female one, reflecting a great shift, like a movement of the moon and the stars, in the story of the French nation. The people in powder had had enough of destiny and doom, of war and grandeur and tragedy all wound about a single man—Louis XIV. The squires rediscovered the country and the sweetness of life at home.

Boucher is said to have been a libertine, and libertines are said in turn to hate women, but one reason that he painted women so well was that he had the gift of sympathizing with them. It is his buttery paint that seduces, his way with pictorial construction that seems to exemplify license. He is really a very domestic painter; he depends, like domestic life, on many tiny successes. He is also a great painter of toddlers and animals, and in his pictures may be found many hints of the sea change that was just beginning to take place in the education of children.

Boucher's life studies of the female nude (like the Louvre's blue *L'Odalisque*, or the pictures from 1751-52 showing a blonde girl), offer a hypnotically intense vision of female sensuality. It is significant that when he came to paint the blonde beauty who appears in *The Nude Girl* series—she is thought to be Louise O'Murphy, a teenage prostitute kept by the King when he grew afraid of contracting syphilis from anyone older—he showed her with her head raised from her pillow in inscrutable reverie. Boucher has something in common with the pornographers and erotic memoirists of the period—Casanova, Restif de la Bretonne, the Marquis de Sade—but he is, in the end, a very different sort of figure. He is not concerned with defying or upholding any sort of code; he cares only for vividness and dazzle. He is very like one of those wonderful charlatans who used to strut upon the boards of the theaters of the ancien régime. He is like a charlatan with a false nose and a slipping wig, in a scarlet waistcoat or a cornflower-blue waistcoat, who stays only long enough to sell Tasmania to a gullible young man, or despoil a foolish widow of her *petite aisance*—who stays only long enough to win one laugh from the audience, then turns toward the wings and is gone.

In failing health, with a year to live, Boucher did powerful *Juno Asking Aeolus to Release the Winds.*

Kimbell Art Museum, Fort Worth



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Two children (one from previous marriage)

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Wife	28,000
Interest income	5,000
	$75,000

Assets	
Home Equity	$50,000
Investments	50,000

Estimated Expenses	
Alimony, Child Support	$8,000
Income Tax	19,800
Mortgage, Property Tax, Insurance	15,000
Loans, Life Insurance	3,200
Living Costs	14,500
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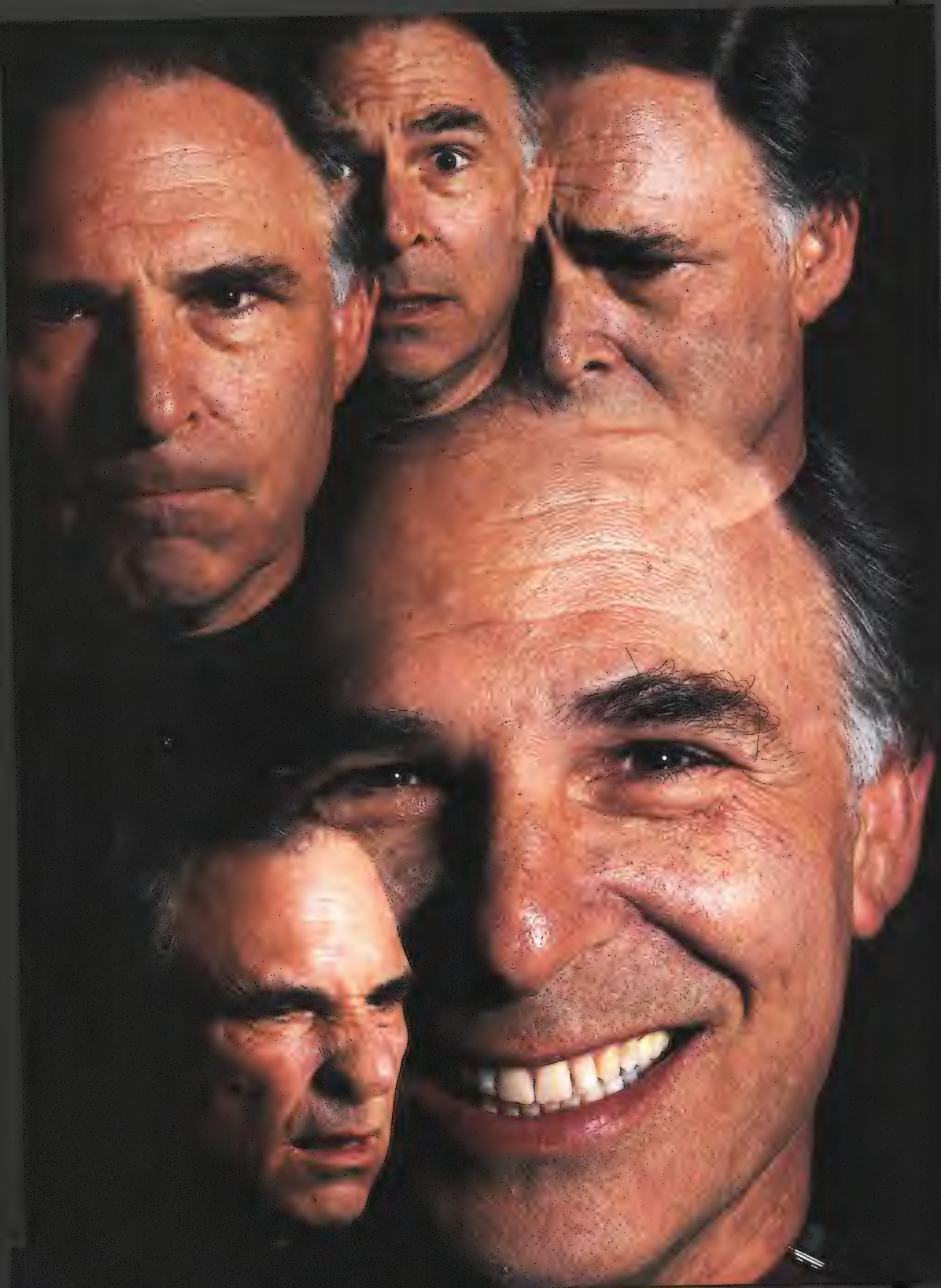

By Jeanne McDermott

Face to face, it's the expression that bears the message

Scientist Paul Ekman demonstrated that all people make the same basic faces, and his studies launched new research into emotions

Paul Ekman has a funny face. It is not the long mouth, the black eyebrows or the broad furrowed forehead, but the way his face tumbles and contorts into an unabashed exhibition of expressions. After practicing before the mirror for several years, Ekman has learned how to control each individual muscle in his face, a dexterity few mimes and actors will claim. "Most people can't do this," he says, snapping into the odd grin that became Charlie Chaplin's trademark. "When I was a kid, my mother said 'Stop making all those crazy expressions on your face,' " he recalls. The odd expression softens into one of bemused contentment. "Now I'm making a living at it."

As an experimental psychologist, Ekman has devoted his entire career to discovering what is in a face. His quest and curiosity are hardly novel. In Helen of Troy's time, there was enough mystique to launch a thousand ships. Even in faces without memorable beauty (which studies of beauty-contest winners suggest is only the idealization of the species' juvenile characteristics), there is plenty. Nothing that we see, no other object in the world, possesses such hypnotic fascination, such wealth of meaning or such power in its confluence of expression and identity.

So rich is the face that each generation of artists has revealed something new about the way we see it. According to Gertrude Stein, Picasso painted faces the way they might appear to a newborn baby: flat, without dimension, features straying off course. With calligraphic brushstrokes, Henri Matisse made quick sketches of his friend, the poet Louis Aragon, capturing how much the face changes from one moment to the next. And with the technology of the 20th century, New York City artist Nancy Burson creates faces that belong to the horizon of dream and imagination.

The woman in one of Burson's photographs looks like a *Vogue* model, today's image of a natural beauty (p. 115). But look again. There is nothing natural about this face. It belongs to no one who has ever existed or ever will. Rather, it is a chimera, a composite created by camera and computer. For more than a decade, Burson has been developing the software that allows her to merge two or more faces into one believable and utterly impossible composite. When a plastic surgeon told Burson that people came to him with a list of ten things they wanted—"like Audrey Hepburn's nose"—it stimulated her interest in the notion of what we call beautiful. Rather than making a patchwork of the desired features, she superimposed the faces of five icons from the 1950s: Grace Kelly, Sophia Loren, Bette Davis, Audrey Hepburn and Marilyn Monroe. Then she blended the faces of today's icons: Brooke Shields, Jacqueline Bisset, Diane Keaton, Jane Fonda and Meryl Streep. Alone, each composite face is a ghost of beauty. Together, they remind us that our ideal face, and Hollywood's, changes with time.

Darwin's overlooked theory of faces

Like artists, scientists have also been drawn to faces as a subject of study. Some contemporary scientists see the face as a key to understanding how we communicate, how we see and how we remember emotional experience. For the first time, and with the usual loose ends and debates, they are tendering some precise answers to many long-standing questions. Charles Darwin was the first to subject the nature of facial expressions to modern scientific analysis. In *The Expression of the Emotions in Man and Animals*, a best-seller in 1872, he argued that the expressions of the face are, in large measure, universal and innate. But despite Darwin's clout and the common sense in his argument, the book had little impact in the late 19th century's flux of ideas. The public still believed in phrenology, divining a person's character from the bumps on his head, and physiognomy, divining a person's character from the features on his face (SMITHSONIAN, November 1980). The infant science of psychology, the study of the mind, was breaking off from philosophy and from physiology, the study of the body. Out of this turmoil

Illustrating the universal expressions on his own face, Ekman (in clockwise sequence from the top left) shows anger, fear, sadness, happiness and disgust.

came the conviction that universal expressions of the face did not exist, a belief later reinforced by the behaviorists and cultural anthropologists in the 20th century.

Only in the mid-1960s did Paul Ekman, along with Carroll Izard, also a psychologist, resurrect Darwin's ideas, which they had both encountered in Silvan Tomkins' book, *Affect, Imagery, Consciousness*. In appearance and style, the two offer a contrast. Ekman is broad-shouldered and works in a mask-filled clutter on the fog-cool San Francisco campus of the University of California. Izard is thin to the point of gauntness with a superclean desk at the University of Delaware. But you cannot help noticing that both possess very expressive faces.

Although individuals can read nearly infinite shades of meaning into a face, Ekman and Izard wanted to know if any expressions carry the same meaning, regardless of the observer, the word we attach to it, the culture or the context. Ekman, who was initially skeptical and Izard, who was not, used photographs of faces that a large number of people in this country agreed depicted one and only one simple emotion. On what Ekman now calls the "universals expedition," he and Izard found the same responses among literate people in Europe, South America, Africa and Japan. Ekman then showed these photos to tribespeople in Borneo and New Guinea who did not read or write and who had never been exposed to modern media. When asked which face illustrated a story, such as "she is angry and about to fight," the tribespeople judged the faces in the same way we do. While each culture used different words to label the emotions, all associated the same expressions with the same feelings. Around the world, brows lowered and drawn together, tightened lower eyelids and pressed lips mean anger; a wrinkled nose signals disgust. For fear, happiness, sadness and surprise, they also discovered universal expressions of the face. Izard in his travels in literate areas identified three more—contempt, interest and shame.

Once identified, Ekman and Izard spent the 1970s describing the six universals and their myriad variations by videotaping and analyzing hundreds, if not thousands, of faces. Slow-motion videotaping led Ekman to discover what he calls microexpressions. While an average expression lasts from one to one-and-a-half seconds, these flash across the face in a fraction of a

Computer artist Nancy Burson turns digitized images into composites.

Catwoman composite was made by blending photo of Burson's face with a picture of her feline pet.

"Ideal" of 1950s is mix of Audrey Hepburn, Grace Kelly, Sophia Loren, Bette Davis, Marilyn Monroe.

Today's "ideal" blends faces of Brooke Shields, Jane Fonda, Jacqueline Bisset, Diane Keaton, Meryl Streep.

second, too fast for anyone to register consciously. They are fully formed expressions at distinct odds with whatever shows on the person's face. Ekman found them when a patient had attempted suicide only shortly after doctors had granted her leave from a psychiatric hospital. Perplexed, the doctors said she had given them no clue to her despair. Only by replaying a videotape of her last session in slow motion did Ekman catch the fleeting microexpressions of sadness mingled with her otherwise happy face.

Ekman's technique for analyzing the face is based on the underlying muscles. "Unlike other mammals, humans have only facial muscles attached to the skin," he says. "While a horse can flip a fly from its flank, you can only flip a fly off your forehead." Ekman remapped the face's muscles, uncovering ones that anatomists had overlooked. In total, he found 44, assigned each a number and then spent many years with a mirror learning which muscles contract to form what expressions. He has found more than 10,000 possible anatomical combinations and now speaks of faces in terms of numbers. "That's a 13," he says of the Chaplin smile. Only one expression has no number. "A neutral face is one without any muscular contraction evident. But you can read anything into a neutral face, which is what we do," he says, deadpan.

Only a short time after Ekman and Izard gave the scientific community powerful tools for analyzing the face, researchers trooped off to the nursery to find out if the universals are also innate, present from birth. Just how and when and why these expressions emerge is being hotly debated now. Newborns lack the use of only one facial muscle that adults possess, Number 13, in fact. We are born to communicate with the face.

No one believes this as strongly as Tiffany Field, psychologist at the University of Miami Medical School. "We work a lot with newborns. Just playing. The tendency is to make funny faces at them. And their tendency is to make funny faces back," she says. When Field did a systematic study of this playing, she found that babies only 36 hours old can and do imitate happy, sad and surprised expressions on the face. Even prematurely born babies were able to do it.

Newborns were once thought to be blind at birth and are now believed to have limited perception of depth and visual acuity; how can they see a face well enough to mimic it? Many scientists are highly skeptical, and Field herself admits that "the imitative behavior is surprising." Is it a reflex? How much voluntary control does the infant have? Field believes that newborns have an innate ability to compare what they can perceive with what they can do, a built-in resonance to faces and their expressions. Half-jokingly, she says this may explain why smiles are contagious.

The earlier work of Andrew Meltzoff, psychologist at the University of Washington in Seattle, inspired Field's research (p. 118). He looked at actions like sticking the tongue out and opening the mouth. Under conditions that optimized a newborn's ability to see, he found it would readily imitate the adult. But like many scientists, Meltzoff gets wary when it comes to making

Jeanne McDermott is a frequent contributor to the magazine. Her article on vision appeared in April.

claims about emotion. "My work is about the imitation of basic facial actions," he says, "not about complex facial patterns like emotional displays."

What babies may be doing in the first weeks of life is the facial equivalent of babbling, testing the "equipment," so to speak. Since infants seem to be sensitive to faces almost from birth, it is a fair assumption that the "equipment" includes nerve cells in the brain that are attuned to faces. Robert Emde, psychiatrist at the University of Colorado Medical School in Denver, has been studying what newborns can do with this basic equipment. Although Emde has a sleek, Scandinavian-style analyst's couch in his office, he has been interested since graduate-student days in what infants and children communicate without words. From the day of birth, perhaps even before, babies smile. Family folklore says it is a gas pain, or more poetically that the child is smiling at the angels. Emde says that the first smiles are associated with REM, the rapid eye movement stage of brain activity that occurs in adults during the dreaming stage of sleep. In infants, REM occurs 50 percent of the time, when the infant is both awake and asleep. The mother has no control over the REM smiles. "That so violates our intuitive understanding of the principles of communication that some mothers say the smile must be caused by gas or the deities," he says. As the infant ages, the smiling associated with the REM stage changes, paralleling a growth spurt in the brain. By three weeks infants smile, irregularly, to changes in the environment. By two months, infants smile to faces, anybody's face, and soon after, to the caregiver's face more than any other.

Long before children speak or understand language, they speak and understand a powerful language of the face. While working on her doctoral thesis several years ago, Denver psychologist Mary Klinnert discovered a process now known as "social referencing." Watching a session in a camera-lined laboratory-playroom, she noticed how strongly the mother's facial expressions influenced the baby's actions. So she in-

In his search for universal expressions, Paul Ekman asked New Guinea natives how they would feel if: (left) a friend visited, (center) your child died, or (right) you saw a dead pig, lying there a long time.

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Psychologist Andrew Meltzoff, in top row of pictures, makes a series of faces at infants, whose responses are shown in corresponding pictures in bottom row. The infants in this study were two to three weeks old. Prior to Meltzoff's work, scientists thought that infants could not imitate facial gestures until eight months of age.

vited toddlers, 12 and 18 months old, to play with scary toys like Incredible Hulk and a remote-controlled spiderlike robot. Before making a beeline for the toy, some children hesitated and checked the mother's face for guidance. Klinnert had carefully trained the mothers in the expressions of approval or apprehension. When the mother smiled serenely, the child went ahead and played. But when the mother grimaced or showed fear, most children backed off and some cried. Not a word was required to keep the dubious infant away from uncertainty. All it took was a convincing expression on the mother's face. Klinnert explains: "The child learns ways of seeing the world from other people's expressions."

In the early days of Klinnert's study, however, the children's response was not always as clear-cut. Sometimes, instead of backing off in fear, they began to laugh. When Klinnert played the videotapes in slow motion, she saw what the children had seen: the mothers of laughing babies had changed their posed expression of fear ever so slightly. Rather than lifting the eyebrows, they let them relax. Rather than dropping the corners of the mouth, they began to raise them. The expression of surprise was creeping into that of their fear and the babies, who were attuned to peekaboo games, sensed the very subtle difference. The problem was solved by placing a wireless microphone in the mother's ear and coaching her to keep a fearful look.

If the infant's face is initially a pure medium of expression, then only with time does it become a mask, molded by what the family believes are proper ways to show feeling. "By the age of one, kids are learning enormous amounts about rules for the expression of emotion," says Emde who is studying faces for clues to how different families teach these rules. At this age, children first learn not to show emotion, particularly anger, and they learn to put on expressions, particularly smiles. The tight coupling between a facial expression and the feeling itself begins to stretch.

While the bond between what the face reveals and what the person feels may loosen, it is never truly severed. Ekman studied actors trained in the Stanislavsky method, which teaches them to physically become the characters they play. When asked to assume certain facial expressions, these actors reported feeling the emotion that accompanies the expression—and by such objective physical indicators as heart rate and skin temperature, they did. Izard had earlier obtained similar results when, on a sabbatical in Moscow, he tested actors trained at several institutes following Stanislavsky. If the physical action triggers the emotional sensation, does that mean you will feel happy if you put on a happy face? Not with a smile, says Ekman, but he has found a close connection with the emotions of an-

As Grant Anderson is always quick to point out, when you can throw the hammer 112 feet in Scotland's Highland Games, "You don't need a winning smile to impress the judge." The good things in life stay that way.

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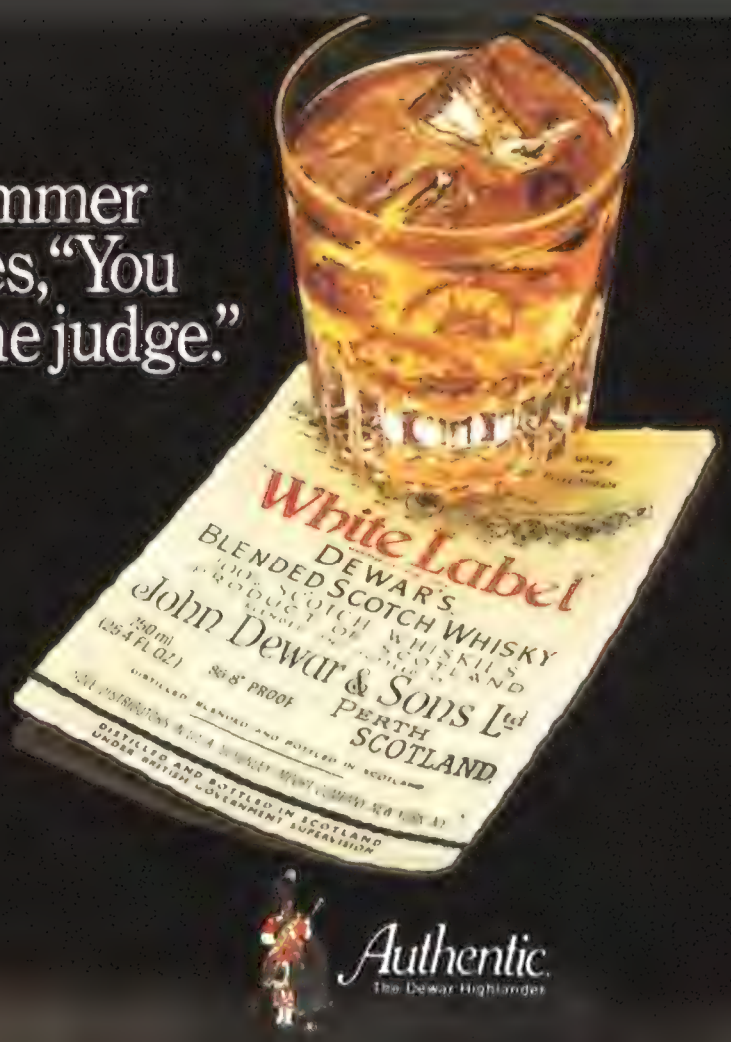

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Face of Mankind (from world population statistics) is 57 percent Asian, 26 percent white, 7 percent black.

Androgyny is represented in this face composed by combining the photographs of six men and six women.

ger, depression, fear and sadness. Feigning those expressions can trigger corresponding internal sensations and physiological changes, he says.

By the age of two, the face is not only a medium and mask for communication but it also becomes the locus of identity. Children learn how to recognize their own faces as reflections of themselves at this age, and then all through childhood they become increasingly adept at recognizing other people's faces. Curiously, this ability momentarily falters around ages 11 through 14, which MIT psychologist Susan Carey attributes to the hormonal and cognitive reshuffling of puberty. But in the midteens, it snaps back and by adulthood, the number of faces that we are able to recognize is as boundless as the universe of possibilities. "We are all Einsteinian physicists when it comes to recognizing faces," Carey says.

For scientists who study how we see and remember, the process of recognizing faces is an enigma. "It's impossible to say in detail how we do it," says Alvin Goldstein, psychologist at the University of Missouri, Columbia. As an object of perception, the face is in a class by itself. Nothing in the environment gives so much information essential to survival. Is the other friend or foe? Kin or outsider? The answer is in the face. And despite the transformation brought by aging, no other object is probably recognized so automatically and on the basis of such slender clues.

When the Defense Advanced Research Projects Agency (DARPA) decided to fund research in teleconferencing, MIT's Media Technology Laboratory initiated an investigation called Transmission of Presence. The question came up: What is needed to carry on a face-to-face conversation between people at remote places? Susan Brennan, now a researcher at Hewlett-Packard Labs, proposed the caricature as one answer. For her master's thesis, she developed software that transforms faces into caricatures. Her system starts with a realistic line drawing, which it compares with an "average" face composed of all the other faces stored in the computer's memory. An operator exaggerates the differences between the line drawing and the average until an acceptable likeness is found. Then the caricature is automatically animated and driven by speech over ordinary telephone lines.

Caricatures proved more acceptable to teleconferencers than another approach to the MIT project called Lipsync, which borrowed from the traditions of puppetry. Looking vaguely like an advertisement for the Rocky Horror Picture Show, it animated a digi-

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tized photograph of the face with only the lips moving in synchrony to the person's words. One reason for the caricature's relative success (it has yet to be used commercially) is that it may be a visual shortcut, a potent distillation of the eye and brain's own strategy for recognizing faces. From the exaggerated lines of a caricature emerge a likeness that just isn't there in the equally simple but more faithful lines of a silhouette. The caricaturist knows that the face is not merely the sum of its features, but something whole—an arrangement of three-dimensional relationships. Unlike a silhouette artist, the caricaturist takes information from several points of view and compresses and distorts them onto a flat page. A caricature does not simply distort the face's features but makes that distortion relative to a tacit understanding of what is unusual about the face and what is not. While Richard Nixon and Alfred Hitchcock made easy targets for caricature, Gerald Ford did not. His face looked too "average."

With the exception of such famous faces, the "average" faces that people carry in their minds for reference vary with experience. Cognitive psychologists believe that we may recognize people by learning the range of variations possible within a group of faces and by unconsciously flagging the ways each individual falls within the range. The well-known fact that people of one race have trouble distinguishing people of another reflects the segregation of society more than any biological predisposition. The white child without black friends will not learn about the range of variations in black faces, and thus what makes one face distinctive relative to others.

While no one knows how to describe just what we recognize, the memory for faces is both durable and flexible. A famous study done at Ohio Wesleyan University in the 1970s found that we can recognize the faces of high-school classmates (without necessarily remembering the names) even 50 years after graduation. And they are hardly the same faces. After the bones and cartilage of the face stop growing, time and gravity take over, until the skin begins to sag around the jaw, neck and eyes, and wrinkles, creases and crow's-feet make their appearance.

Although the face does not age in easily predictable ways, computer artist Nancy Burson has developed the means to electronically simulate the aging process. In 1969, she first imagined a computer-screen version of *The Picture of Dorian Gray*—Oscar Wilde's tale of a portrait that grows old and ugly on canvas. Computer scientists told her at that time that it could not be done. But Burson was tenacious. By the late 1970s, the technology had caught up with her and she was able to apply a realistic mask of wrinkles to anyone's face. After using it initially to see what celebrities like the Royal Family and Brooke Shields would look like as senior citizens, she turned her attention to the aging of missing children. For the case of Etan Patz, a New York City child who disappeared seven years ago on his way to the school bus, Burson interviewed the family and asked them to decide whom Etan most resembled. She blended one of his last photographs with a recent one of his older sibling. While the child has not yet been found, the FBI has expressed interest in using Burson's approach with other cases.

A person who can't recognize her own face

The answer to why most people never forget a face may eventually come from people who do. Nowhere is the process of facial recognition so disturbed as in people with a very strange disorder called prosopagnosia. Antonio Damasio, neurologist at the University of Iowa's College of Medicine and this country's expert, sees only about one case a year. It develops only after a stroke or accident injures the tiny section of the brain involved in processing information about the face. Once-familiar faces no longer appear familiar. In one case, according to Damasio, "a 60-year-old woman suddenly noted that she could no longer recognize the faces of her husband and daughter. To her amazement, she could not even recognize herself in the mirror, nor could she recognize the faces of her neighbors. Yet she always knew that a face was a face." By showing patients photographs of people they knew and monitoring their automatic (or unconscious) responses with skin electrodes, Damasio found that his patients actually did recognize the faces—unconsciously. But this recognition had somehow slipped away from their conscious control.

As Damasio has pointed out, prosopagnosics fail to recognize more than faces, an observation that may lead to a more global understanding of the structure of

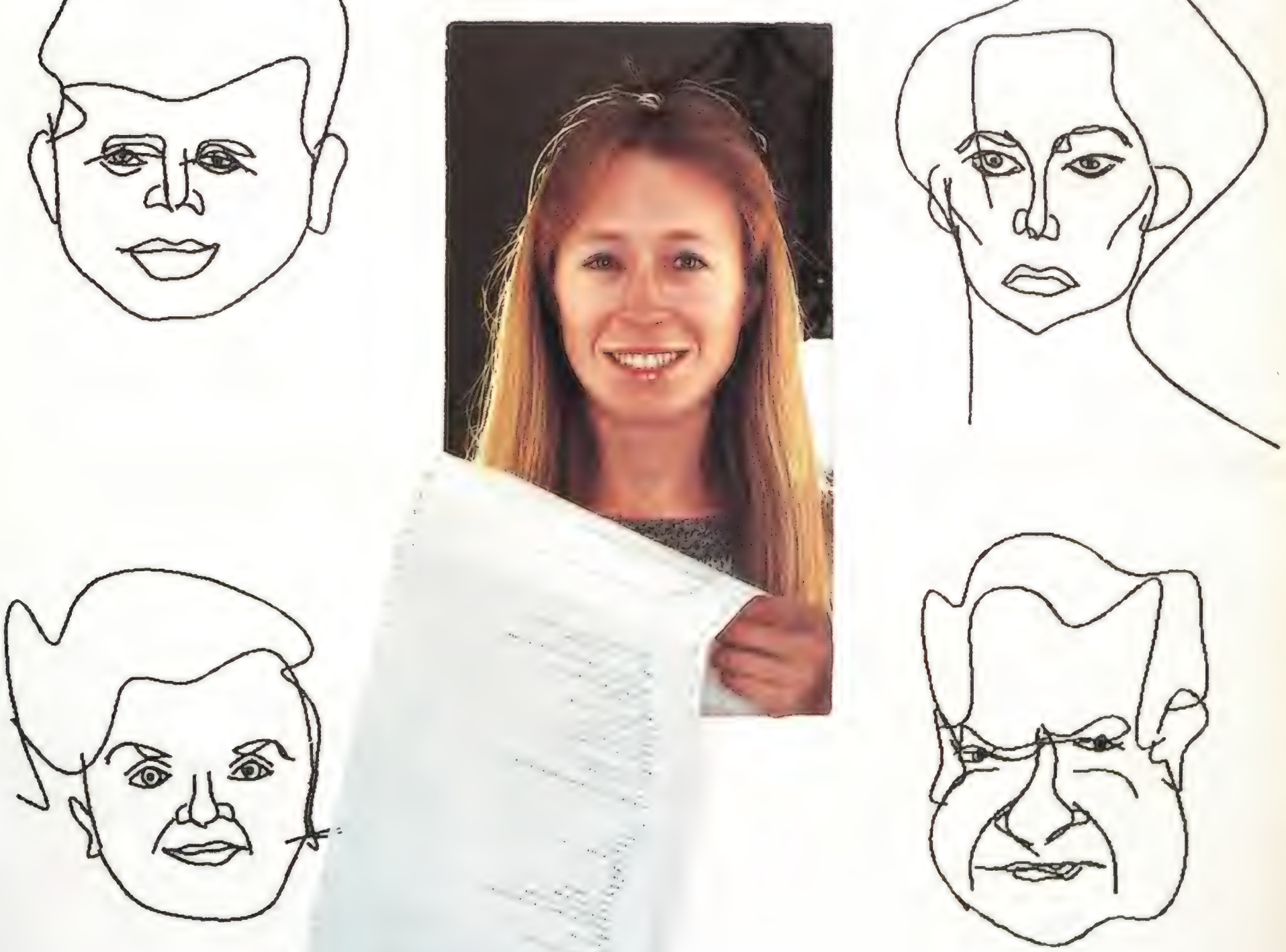
the brain's memory. Boston neurologist Michael Alexander has one patient, an electrician, who finds wiring panels as confusing now as the faces of his three daughters. Another patient is a dermatologist who is no longer able to distinguish skin diseases. Alexander speculates that "at a very young age, some basic neurological mechanism for recognizing faces develops and we may use this feature to distinguish other meaningful objects."

Alexander's speculation raises an intriguing possibility. Does this innate framework for facial recognition also serve as a foundation for an esthetic sense? "Our notion of beauty may well originate in the face," says Joseph Campos, director of the Infant Development Laboratory of the University of Denver. "A baby may first scrutinize the face and then generalize it to other objects." The face contains all the qualities artists traditionally celebrate—symmetry, proportion, contrast. And these qualities, in turn, may also explain why the face proves to be such an enduring and irresistible subject for artists.

Like the artists before them, scientists with many different perspectives are converging on the face. It took Ekman's and Izard's "universals expeditions" and their tools for analysis to make the face a respectable thing to study. By and large, Ekman shrugs off his pioneering role. Credit belongs to many. But then he says playfully, "I've never been able to understand why everybody doesn't study the face." Actually, most of us do. We just don't get paid for it.

Researcher Susan Brennan's computer program created caricatures based on realistic line drawings.

The caricatures include (clockwise from top left) JFK, Faye Dunaway, Richard Nixon, Dianne Feinstein.



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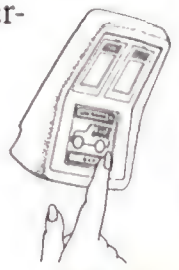

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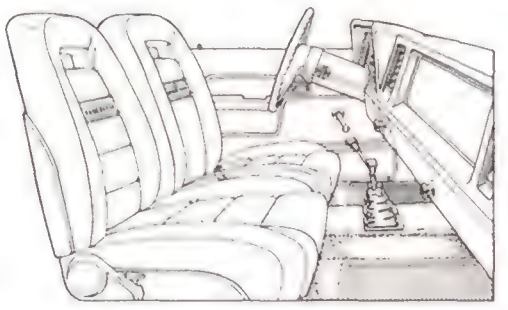

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By Phil Patton

America's home away from home is still a good motel

Camps, like this one near Henderson, North Carolina, in 1929 paved the way for developments to come.

Be it ever so humble—or grand—the great American motel had to have been invented here, offering many things to many people

The snow had been falling in the West for days, choking the highways, and before long there were 14 trucks at the Blue Swallow Motel in Tucumcari, New Mexico, and 14 drivers in the motel's 14 rooms. The poker game went on around the clock. Mrs. Lillian Redman, who owns the Blue Swallow, kept the coffeepot boiling. Every now and then she got a hand in herself.

The Blue Swallow may be the last, best and friendliest of the old-time motels. It is right smack on the old Route 66 in a town that once boasted 48 motels, a town best known for being roughly halfway between Oklahoma City and Flagstaff, Arizona, and a day's ride from each. But just as Interstate 40 has replaced Route 66, the sleek modern motor inn has displaced the traditional motel. The Blue Swallow is a relic of a short-lived but classic American institution.

It was 60 years ago that the word "motel," which outlasted such rivals as "autel," was invented by Arthur Heineman, who tagged his establishment on Route 101 in San Luis Obispo, California, the Mo-tel Inn. Heineman really invented only the word "motel." His place was much grander than most of those with which the term eventually became associated. It was a mock Spanish mission—as if the padres were taking in travelers for the night the way they did in the days of El Camino Real—with a bell tower and a sign that superimposed the "M" of Heineman's new linguistic coinage like a roof over the initial "H" of hotel. The original buildings of the Mo-tel Inn still stand (p.130).

By a happy coincidence with the 60th anniversary of the christening, Smithsonian's National Museum of American History is presenting an exhibition called "At Home on the Road," which is full of motel memorabilia (p.137). Featuring such artifacts as a figure of John Holiday, the old-fashioned innkeeper mascot of the Holiday Inn chain, the show will run through August 1986.

Roger White, the museum specialist who put the show together, explains that Heineman's coinage has come to encompass not only the classic motel, with its rooms arranged under one long, low roof, but its predecessors, the motor court, and its successor, the chain motor inn.

In fact, the reign of the classic motel was short—really from the '40s to the late '50s, when the interstate-highway program and the boom in the chains made it obsolete. The typical motel began as a Ma-and-Pa operation, the creation, often, of a retired couple who would turn the front room of their big old farmhouse into an office and put their savings into building behind it a rank of rooms not much more substantial than the chicken coops they replaced.

In the age of the chain, motels like the Blue Swallow are monuments to a fading American institution. For two generations now, staying in a motel has been an almost primal American experience. We all seem to remember our first motel room. It is, perhaps, the universal smell that sets off the recollection, that elusive but distinctive combination of disinfectant and carpet cleaner, a discount version of Proustian evocation.

One of the last, and best, of the old-time motels announces itself proudly in Tucumcari, New Mexico.

In 1934 motel scene of *It Happened One Night*, Clark Gable and Claudette Colbert share a cabin.

Lined up like so many sentinel boxes are cottages of the English Village tourist camp, built in the 1930s.

I remember mine, somewhere in Georgia, because at age five or six I left my first pair of cowboy boots there, tucked under the edge of the bed, their loss realized only after the family was far down the road. I still see those boots as if they had stayed in the shadow of that standardized bed lo these many years, and harbor some crazy hope of their eventual retrieval.

We have all left a part of ourselves in motel rooms, for motels are shrines to the American cult of mobility, to our constant and endless searching, the hopes and dissatisfactions that put us on the road.

America's restlessness was analyzed early in our history by Alexis de Tocqueville, with his characteristic insight and prescience, and I thought of my first motel room and those boots, years later, when I read his sentences on American restlessness: ". . . if at the end of a year of unremitting labor he [the American] finds he has a few days' vacation, his eager curiosity whirls him over the vast extent of the United States, and he will travel fifteen hundred miles in a few days to shake off his happiness. Death at length overtakes him, but it is before he is weary of his bootless chase of that complete felicity which forever escapes him."

"Bootless," indeed: such is the pursuit of happiness that is the core of our independence, and the pursuit of the ultimate, comfortable motel, the perfect home away from home.

Our memories of specific motel rooms blend into each other, like some sort of lap-dissolve technique in film, until the motel room becomes a sort of neutral and abstract space—so much the same and yet slightly different, with the strangeness of a familiar word repeated over and over again.

Sam Shepard used the motel as a sort of existential setting for his play *Fool for Love*. His stage directions turn it into something that passes beyond any specific locale: "Stark, low-rent motel room on the edge of the Mojave Desert. Faded green plaster walls. Dark brown linoleum floor. No rugs. Cast iron four poster single bed . . . covered with faded blue chenille bedspread."

This was the motel of imagination, the dreary, down-at-the-heels motel whose associations every motel proprietor was trying to escape. The history of the motel has been a constant battle for improvements and against this sort of bad reputation.

The history of the Blue Swallow is not unlike that of most motels. Lillian Redman's husband gave her the motel as an engagement present in 1958. It was built in the '40s by a Mr. W. A. Huggins as a series of cabins or cottages. Carports were later added between the cabins, and after the Redmans took over, they reconstructed the place in the familiar motel form of adjoining rooms beneath a common roof.

"The place was called the Blue Bird when we got it," Mrs. Redman says, "but I changed it to Blue Swallow because that is the bird of happiness."

Mrs. Redman (p.136) had spent her life working as a cook for the pioneering restaurant chain developed by Fred Harvey for the Santa Fe railroad. She was ready to get out of the kitchen. Motel keeping seemed an ideal change, but, like many of the Ma-and-Pa teams who got into the business looking for semi retirement, she found that it's not an easy life. "You're always on duty," she says; "you can never take a break."

Mrs. Redman's patrons today are mostly truckers, budget-conscious tourists and travelers who simply appreciate her homey touches. Many are "repeats," folks who have been stopping in for years and whose migrations possess the regularity of the birds that lent the place its name.

To keep people coming back, Mrs. Redman has to take special care of her customers. "You have to cater to their needs, treat 'em right.

"We've had wealthy people stay here and we've had

At Indian Head Resort in White Mountains, New Hampshire, camp still operates in good weather.

In 1952, when the first Holiday Inn opened, a typical room like this one cost about $4 a night.

hippie-type people," Mrs. Redman says. "We've had people driving LTD's and people driving Model-T's.

"Once we had a streaker," she recalls. "He stayed a week and he liked to take his clothes off and run around the block at sundown.

"We've had all kinds. What I always say is, if you don't see what you like, just wait."

Lillian Redman's personal touches are a throwback to the early days of motor travel. By 1922 there were about 12 million cars on the road and "autocamping" was all the rage. Free public campgrounds were created to draw tourist traffic to towns. While recorders of the early days of road tourism, like Jan and Cora Gordon, authors of *On Wandering Wheels: Through Roadside Camps from Maine to Georgia in an Old Sedan Car,* found "an easy, good natured democracy" to the camps, by the end of the '20s things seemed a bit too democratic, with their shared showers and with the increasing number of "motor hoboes."

Soon the private campground, with gas station and store, and a 25- to 75-cents-a-night charge, replaced the free ground. The next step was the cabin or cottage camp, which offered fixed shelter in place of the tents of the first autocampers.

Propriety was not the strong point of the cabin camp. In Frank Capra's 1934 comedy, *It Happened One Night,* Clark Gable and Claudette Colbert stop at one and the result is what passed then for a racy scene: she undresses behind a blanket hung to separate their halves of a shared cabin.

It was only a matter of time until those tired of standing in line for the common showers evinced a willingness to pay a little more for cabins with their own bathrooms—even as much as one whole dollar.

The cabins sometimes were log cabins. Other times they were adobe, stone or shingle. Sometimes they mocked fairy-tale cottages or Colonial New England houses. The styles and materials, of course, emphasized the attractions of the region.

On the outskirts of Natchez, Mississippi, for instance, which boasts of the finest Greek Revival antebellum mansions in the South, a builder put miniature Doric-columned porches on each cabin.

The change from field to cottage and then to motel was a gradual one. Clara Keyton, who with her husband, Will, ran a cabin court for years along Route 66 in Arizona and left one of the few memoirs of the early days of the business, began in 1925 with a filling station, grocery store and an open field in which travelers rented tent space for a quarter. The next year the Keytons began building cottages; by 1930 they had 40 of them.

The next change was from the type of the Kozy Komfortable Kottages to the classic motel of the late '40s and '50s. An intermediate stage came when carports were built between cottages. Eventually, the need for economies in building to make up for the luxuries of the rooms—carpet, television, fancier furniture—produced the modern motel, with all the rooms slung together under one roof, low and long as the horizon itself.

One man who has traced this change is John Margolies, connoisseur of American motels and their lore, photographer, architectural historian and devoted traveler. Margolies remembers well an early stop at a motel in 1953, in Gatlinburg, Tennessee, then as now the tourist trap gateway to the Great Smokies. Since then, he has visited and photographed motels around the country, from Sioux City to Bossier City, from Hot Springs, Arkansas, to Warm Springs, Georgia.

Brooklyn writer Phil Patton's book, Open Road: A Celebration of the American Highway, *is to be published in June by Simon and Schuster.*

Mo-tel Inn, San Luis Obispo, California, was built by Arthur Heineman, who invented the word "motel."

Margolies has seen boxcars turned into motel rooms (below) in Somerville, Texas, Tudor courts in Amarillo and the Alamo Plaza, with its "alamoettes" in Gulfport, Mississippi. He has taken color photographs of a notable array of motel signs (p.135), many of which are long gone. Because the rooms themselves were so similar, the signs had to work all the harder to distinguish each motel. These signs, the roadside equivalent of a Cecil B. DeMille Hollywood production, made grandiloquent appeal to the traveler of the '40s and '50s, listing the place's amenities, and displaying names that played off of local color—"Seaside," "Ocean View," "Sioux Chief"—or promised magic transcending locality: "Rainbow," "Paradise," "Wonderview."

Margolies has found out that the inspiration for the most famous of the old protomotels, the Wigwam Villages, were the brainstorm of one Frank Redford, who was inspired by the sight of a tepee-shaped drive-in restaurant on East Second Street, Long Beach, California, in the 1930s. A tepee motel seemed perfect.

In 1962, 11 railway boxcars were converted into Motel 66 in Somerville, Texas. It was open until last year.

Redford obtained a patent for his Wigwam motif, and although their fame suggests that there are many more, he built just seven of them (p.132). Perhaps because their shapes are an apt symbol for the nomadic impulses associated with the motel, they have caught the imagination of students of the roadside. The first, in Horse Cave, Kentucky, was destroyed a few years ago, but it is succeeded by Number Two in nearby Cave City. Number Seven, in Rialto, California, still operates as well. Its marquee not long ago boasted water beds and invited patrons to "do it in a teepee."

The Wigwams had a number of imitators. One, I remember from childhood, was near Cherokee, North Carolina, called Mac's Indian Village Cabins. I had remembered the cabins as freestanding tepees, but when I returned not long ago, I discovered that the tepees were in fact simply false fronts built onto standard cabins like stage sets. It was, like so much about the motel, a lesson in memory, a demonstration of how recollection lends full and romantic body to the flat impressions of the past.

I talked to the daughter of the owner, Mrs. Beatrice Bradley. "Mac," she said, was the man who built the place in the late '30s, a Mr. L. F. McIlheny, "out of Sou' Car'lina," who, around 1948, "run his car into the river and drownded."

After Mrs. Bradley took over, she put neon on the cabins. She courted the regulars. And she worried, like so many other motel owners, about the long-threatened coming of the Big New Road, the Bypass.

In fact, notes Roger White, such exotic shapes as the

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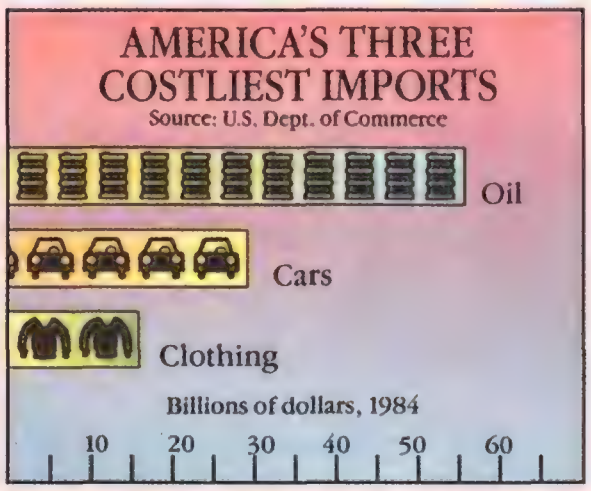

Foreign oil is costing the United States far more than any other imported product.

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tepee were relatively rare. The classic '50s motel was a fairly standardized building type that strove to create around its banal construction an atmosphere of perpetual vacation, of abstract tropical leisure, of something approaching romance.

The motel business had boomed first in warm areas, with plenty of tourists, and later motels were modeled after them: a semitropical mood became standard everywhere. Thus the swimming pool and thus the names evocative of Florida or California, like "Palms," "Flamingo" or "Rancho Seaside," even in Ohio or Pennsylvania. Along Route 1 in New Jersey, there is a motel called the "Hollywood" with life-size plastic palm trees outside, coated with diesel soot from the passing trucks.

The motel introduced Americans to all sorts of modern amenities. In the years before the reassuring familiarity of the chains, motel owners advertised reliable nationally known products instead: Congoleum flooring and Simmons Beautyrest mattresses. The features boasted on hundreds of motel signs—steam heat, tile bathrooms, sliding glass doors, air conditioning, first radio and then color television in every room, were for many people their first experience with these niceties. In the '50s, modern furniture—molded plywood and plastics, kidney-shaped tables in Danish teak—and modern architecture began to replace Colonial furnishings and mock Tudor. Bauhaus came to our house at times, it seems, by way of motel rooms.

The addition of up-to-date luxuries was part of the competition between motels, but it was also part of the motel owner's constant battle with the institution's bad reputation. There has always been a dark side to the motel.

The most famous film motel, after all, is the sinister Bates Motel of Alfred Hitchcock's *Psycho*. And the motel and the motor court before it were long associated with crime. Bonnie Parker and Clyde Barrow were given to stopping in auto cabins. One of their shoot-outs with authorities took place at the Red Crown Cabin Camp, near Platte City, Missouri, in July of 1933.

Wigwam Village, located in Horse Cave, Kentucky, no longer exists. A sister camp in area still operates.

In 1940, J. Edgar Hoover published an influential article in the old *American Magazine*, a sort of second-string *Saturday Evening Post*, condemning motels and motor courts as "camps of crime."

Hoover recounted story after story of hardened criminals who holed up at auto camps. To judge by Hoover's accounts, these criminals tended to have female sidekicks of tender years and double names like "Mary Sue" and "Stella Mae." There was Lester Brockelhurst, for instance, who went on a spree of murder and robbery along with a 17-year-old female accomplice, staying in camps and motels along the way.

Despite his sometimes hysterical tone, Hoover had a point: many of the camps were located at the edge of town or in the country, where they escaped close scrutiny by law-enforcement officials. And many did have the sort of trade that expected anonymity. Preserving that anonymity involved not being too particular about the illegibly scrawled signatures and the frequency of John Smiths entered in the register. In some cases, however, it involved actual collusion with the criminals Hoover was after. The FBI succeeded in putting at least one operator behind bars. A certain Mrs. Faye Fulbright hid members of the notorious Spargur gang, whose members had made a series of large unauthorized withdrawals from Missouri banks, at her camp and "dine and dance joint." She was convicted of sheltering fugitives and sent to prison for two years.

A great many camps, of course, were completely innocent. No self-respecting criminal would have ventured, for instance, into the fairy-tale world of the

Fairyland Cottages, Detroit Lakes, Minnesota, were built around 1937 and are still going strong.

The TREASURE HOUSES of BRITAIN

FIVE HUNDRED YEARS OF PRIVATE PATRONAGE AND ART COLLECTING

Gilt Wall Sconce by William Kent, c. 1730. Knole, Kent. The National Trust.

November 1985—March 1986
NATIONAL GALLERY OF ART
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replica "Danish village" in Maine, or the many "Dutch Mills" in Pennsylvania.

Hoover seemed at least as upset that the camps were being used for "assignations" as that they sheltered criminals. The motel as a locale for sin was a standard part of its image. This side of the business was called "hot pillow" or "Mr. and Mrs. Jones trade." It titillated generations of high-school students. "Kids turn into teenagers, but what do teenagers turn into?—Motels." People joked about the "No-tell Motel," and John Margolies claims there really is one called that, on Division Street in Grand Rapids, Michigan.

This side of motel life also became confused, somewhere along the way, with sanitary inadequacy. Motel owners fought this reputation for years, says Roger White. They did so by such symbolic efforts as the "sanitizing" strip over the toilet and the glassine wrapper around the "boiled" glasses.

The classic rendering of this side of the motel, of course, is Vladimir Nabokov's *Lolita*. The narrator Humbert Humbert in his travels "grew to prefer the Functional motel." He too observed the change from motor court to classic motel, the "tendency for cabins to fuse and gradually form the caravansary. . . ."

Nabokov, however, noted and recorded much more about motels. In particular, he sketched the sort of adversary relationship that developed between the guest and the owner. He summed up the guest's attitude in his caricature of a sign posted inside the motel door: "We wish you to feel at home here. All equipment was carefully checked upon your arrival. Your license number is on record here. Use hot water sparingly. We reserve the right to eject without notice any objectionable person. Do not throw waste material of any kind in the toilet bowl. Thank you. Call again. The Management. P.S. We consider our guests the Finest People of the World."

Clara Keyton, in an earlier time, saw things from the other side. She ran the desk, cleaned rooms and pumped gasoline. She complained that by the Depression she had to put up with constant "grouching and miserliness." Patrons tried to haggle the price down from $1.25 or so with the phrase, "You just ought to see what we had last night." Then when they left, she said, they would take the towels. Keyton left the business in 1940.

With the classic motel fading, many of us tend to become mental "collectors" of the odd, the memorable, the ultimate motel, ones we've stayed in and the ones we've marveled at in passing.

The gaudiest motel I've ever seen is the Hee Haw Motel, north of Nashville, a crazy country-music kind of place, with hyped-up blue and orange coloring the masonry of its exterior. Visitors are lured to the Hee Haw primarily by its fireworks store out front, all painted up with black cats and bears and secondarily by its "zoo," which boasts not only a bear but a "live Florida alligator."

The loneliest was in Paducah, Texas, northeast of Lubbock, reached after a long drive down a desolate, straight road with coyotes slinking by its edge and even an occasional tumbleweed bounced across it by the wind. What made the place lonely, however, was the sad regular flashing of the sign seeping into the room and the occasional distant sounds of a truck working its way up through the gears and the cry of the air horn in the night. There was something timeless about the place, and I half expected to find my lost boots there, grown up to my current size, under the bed.

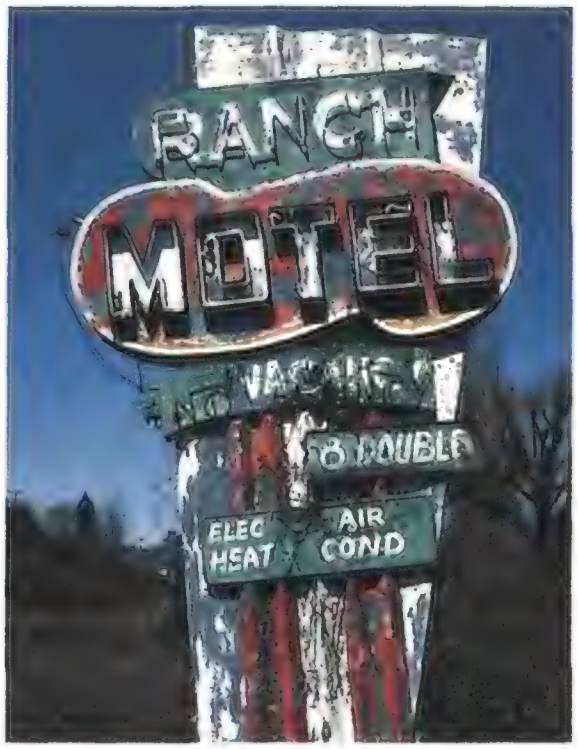
The motel has been imitated in Europe. The best-designed motel I ever stayed in was in the Piedmont area of Italy, in a town called Alba. The Alba Motel stood in the same relation to the standard American motel that an Alfa Romeo or a Lamborghini stand, say, to a 1956 Ford Fairlane. It was all high tech, high design, the rooms arrayed like a section of a little stadium, curving around a grassy space, with a view toward the Piedmontese vineyards beyond. Inside, everything was blond wood and beige Formica, with accents of fire-engine red and beds of shiny, high-tech metal tubing.

Most American motel rooms look the same today because, of course, most motels belong to chains or associations. The first chains rose in synchronization with the planning of the interstate system and the

Across the land, on funnel-routes leading from
one place to another as quickly as possible,
in resort areas, forests and oceanside, there grew
an efflorescence of neon and bizarre shapes.

Tucumcari, New Mexico

Southwest Virginia. Closed down



Marshalltown, Iowa

Monroeville, Ohio

Park City, Kentucky. Closed down

Reno, Nevada (left)

Amarillo, Texas

Salt Lake City, Utah

Lillian Redman, 76, received old Blue Swallow in Tucumcari as an engagement present—a fine one.

building of other major roads in the '50s and '60s.

Location is the key to the success of any motel. Tucumcari's economy revolved around motels; at one point it boasted 48 of them. The town made sure everyone driving Route 66 was aware of the fact by setting up billboards along the route, huge red signs proclaiming "Tucumcari Tonite!" that became landmarks.

Now Interstate 40 has supplanted or, along urban stretches, bypassed most of old 66 and killed off some of the motels, like the Flying W Ranch Motel, with its sign of neon wings. If you drive along what was Route 66 today you will see dozens of them, motels with pink and blue and yellow pastel sides and glass-block entrances, with loggias of pierced-pattern concrete block and metal chairs out front, motels with kidney-shaped signs and acrobatic arrows upholstered in light bulbs, with little satellites perched atop their poles and palm trees and flamingoes and covered wagons and tepees.

There are few things more lonesome than a dead motel, the neon tubing on the sign broken, the paint peeling off the sign to reveal gray metal underneath, plywood in the picture windows—all victims of standardization.

The chains that closed up many old motels were the creation not of the big hotel companies, but of individual entrepreneurs. Motorists avoided hotels from the beginning of the auto age for several reasons. Hotels were expensive, to begin with, and early motoring was seen as a modern form of camping. The first motorists were dirty or dusty, and in no fit shape to enter a fancy lobby. And from the first, the motorist showed a reluctance to be separated from his vehicle. He liked it close by, preferably in sight, as if in readiness for a quick getaway.

Hotels, for their part, disdained the motel business. Only in recent years, as the line between traditional hotel and motor inn blurred, have the Sheratons and Hiltons entered the roadside and interchange market.

Onward and upward in the motel world

It was clear from early on that some sort of national motel chain was inevitable, just as it had been clear, long before Henry Ford, that Americans must have cheap, mass-produced cars. Wrote Sinclair Lewis in the '20s, "somewhere in these states there is a young man who is going to be rich. He may be washing bottles in a dairy lunch. He is going to start a chain of small, clean, pleasant hotels, standardized and nationally advertised, along every important motor route in the country. He is not going to waste money on gilt and onyx, but he is going to have agreeable clerks, good coffee, endurable mattresses and good lighting. . . ."

James Agee, surveying roadside accommodations for *Fortune* in 1934, already observed that "an industry is growing out of the tourist cabin." He noted that the Pierce Petroleum company built a protochain in the late '20s, but their places were too fancy, too expensive for a nation entering the Depression.

In the '30s, the Pure Oil Company developed a chain of Tudor-style motels—Tudor was popular for its evocation of the old English inn. One of the chain's operators was Colonel Harland Sanders, who ran a motel attached to his "servistation" and café in Corbin, Kentucky, and another near Asheville, North Carolina, before he ever dipped a chicken in his 11 famous herbs and spices.

The most famous of the chains, Holiday Inn, succeeded by combining a standardized unit—the room itself—with a fixed scale—120 rooms—and the franchising resources of one of the nation's leading home builders, Wallace Johnson. The first Holiday Inns termed themselves "hotel courts" and emphasized family values: the five children of founder Kemmons Wilson cut the ribbon at the first Inn and his mother, Ruby (Doll) Wilson, designed the interiors.

The chains fought the motel's reputation for moral looseness, says Roger White, by emphasizing family values, along with the personal piety of the operator. Kemmons Wilson, a friend of the Rev. Billy Graham, put chaplains on call at many motels in his chain and deployed a Gideon Bible in every room. With the figure of John Holiday, the inns tried to imitate the

connotations of Howard Johnson's silhouetted figure of Simple Simon and the Pie Man.

Scott King built up his Travelodges from a single outlet in San Diego. Ramada Inn got started in Flagstaff, Arizona. Howard Johnson's added motor lodges to its business in the '50s, after many of its operators began building motels behind their restaurants.

Daniel Boorstin has written of the role of the chains in making every place any place. But that is their ambition: "The best surprise is no surprise," was a Holiday Inn ad slogan of a few years ago.

But no ice machine, no wall-to-wall carpet, no television dished down from the superstation's satellite, can quite replace the human treatment and scale of the best small motels. In recent years, many American motels have been bought by large families from India, whose willingness to work long hours and take good care of their guests has made them successful at this most American of businesses. Even the big chains have seen the light: Holiday Inns, for instance, has begun building a line of small, traditional, inexpensive motels called Hampton Inns, more like the old motels than the supersize motor inns.

Lillian Redman's Blue Swallow has survived the competition of the chains on the interstates because of the way she treats her guests. At the big chains on the bypass, your wake-up call is likely to be a computerized, recorded voice. Mrs. Redman, by contrast, still wakes her customers with a friendly knock at the door and a gently spoken, genuine "Good morning."

And when they sign in, Lillian Redman gives visitors to the Blue Swallow a blue-typed, personally signed greeting sheet. It reads, in part, "this motel is a human institution to serve people and not solely a money-making organization. . . . May this room and motel be your 'second' home. . . . Even though we may not get to know you, we hope that you will be as comfortable and happy as if you were in your own house. . . . We are all travelers. From 'birth till death' we travel between the eternities." The sentiments are old, quaint, corny and perhaps obsolete, but they are part of what has made the motel an American institution.

This is real setting from "At Home on the Road: Autocamping, Motels, and Rediscovery of America" at Smithsonian's National Museum of American History. The exhibition runs through August 1986.

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By Robert Wernick

An unknown lady of Vix and her buried treasures

One of the century's greatest archaeological finds in France was made by a high school teacher working after hours to use up his funds

"You make me laugh, Joffroy," said the old parish priest of Sainte-Colombe, just upstream from the dig at Vix, "with your tales of a proto-Celtic princess. I was a chaplain in the army, and I know about life. A woman who would have herself buried with all that finery and those jewels was not a respectable woman. That was no princess, my friend, it was the madam of the fanciest brothel in proto-Celtic Burgundy!"

Most historians would not agree with this worthy clergyman. They believe that the woman buried under a great heap of stone and earth on the moist riverbank near what is now the town of Châtillon-sur-Seine might have been a princess or perhaps a high priestess. No one, however, will ever know for sure, since no written records of any kind survive from this part of the world in the sixth century B.C. All that can be said with certainty about her is that she died about the year 500 B.C. when she was in her early thirties in what is now the little village of Vix in the French department of the Côte-d'Or. She had a long narrow head, and she must have been immensely rich, for the treasure buried with her has provided one of the great archaeological finds of the century in France.

The credit for the discovery belongs to René Joffroy, who had been poking around the region for a dozen years since his appointment as a teacher of philosophy in the Châtillon high school after his demobilization from the military in 1940. Joffroy had been a passionate digger since the age of 15, and had achieved no more fame than comes from modest contributions to regional learned journals. He was chairman of the local archaeological society, and the French government gave him a small yearly budget to dig away in his spare time.

It was late in December 1952, and there was still a small amount of money left in the budget. Joffroy had been in the field long enough to know that the first rule of bureaucratic life is to have not a cent left over at year's end—it might give your superiors the idea that you can get by with less the next year. The weather was miserable, but he decided to use these remaining funds digging in a field that had been pointed out to him by one of his assistants, a farmer named Moisson, who had noticed pieces of limestone turned up by the plow. The stone came from a deposit half a mile away, and it seemed plausible that if someone had bothered to move the stone that far, he must have had something valuable he wanted to cover with it.

The field was at the foot of a flat-topped hill called Mont Lassois, where digging had been going on fairly regularly ever since 1929, when a botanist looking for a rare variety of orchid had stumbled onto pottery sherds which dated from hundreds of years before the Romans came. A vast collection of artifacts, including more than a million fragments of pottery, had been dug up here and classified, and had permitted scholars to identify the site as one of the fortified hill towns where the Gaulish tribes made their headquarters. In the later days of the *pax romana*, cities were built where they stand to this day, on level spaces by rivers where communication was easy. But in the brawling days of pre-Roman Gaul people preferred to huddle on heights, as they were to do in the Middle Ages, where they could see an enemy coming from far off.

He recognized a tumulus

The field that Moisson had noticed was close by the river. The dig began in below-freezing weather and went on through howling winds and snow flurries into January. The limestone turned out to have come from stones which had been laid down in regular patterns, except in the center. Joffroy's specialty was the Old Stone Age, but he knew enough to recognize the pattern immediately: it was a tumulus, one of those towering mounds under which the people of the early Iron Age buried their nobility. Unfortunately for the archaeologists, they generally laid out the dead body at ground level and then piled rocks and earth above it. This guaranteed that grave robbers would come bur-

A Gorgon, whose gaze could turn men to stone, glares out from one of the two handles of the Vix krater.

Photographs by Pierre Boulat

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René Joffroy stands in the field where he uncovered the tomb and its contents.

rowing into it within a few decades or centuries. Dozens of similar graves had been excavated, and they had been thoroughly looted in the distant past. From the look of this grave, with its jumble of broken pieces of limestone, it was unlikely that anything of value would have survived. Still, they went on working. They dug a ditch 65 feet long, they dug down to where the waters of the Seine were seeping through the mud. Discouraged but philosophical, Joffroy told Moisson to finish up the day's work and close down the operation, while he went home to write up the history of a failure.

At 7:15 the next morning, while he was shaving, Moisson rang his doorbell. He was in a high state of excitement. Shortly after Joffroy had left the site, Moisson had come across a curious curved object sticking out of the mud. It felt like bronze. It looked, he thought, like part of a packsaddle.

René Joffroy could hardly contain his own excitement. Any bronze object in such a site was almost too much

Mr. Wernick wrote about Icelandic sagas in SMITHSONIAN, *January 1986.*

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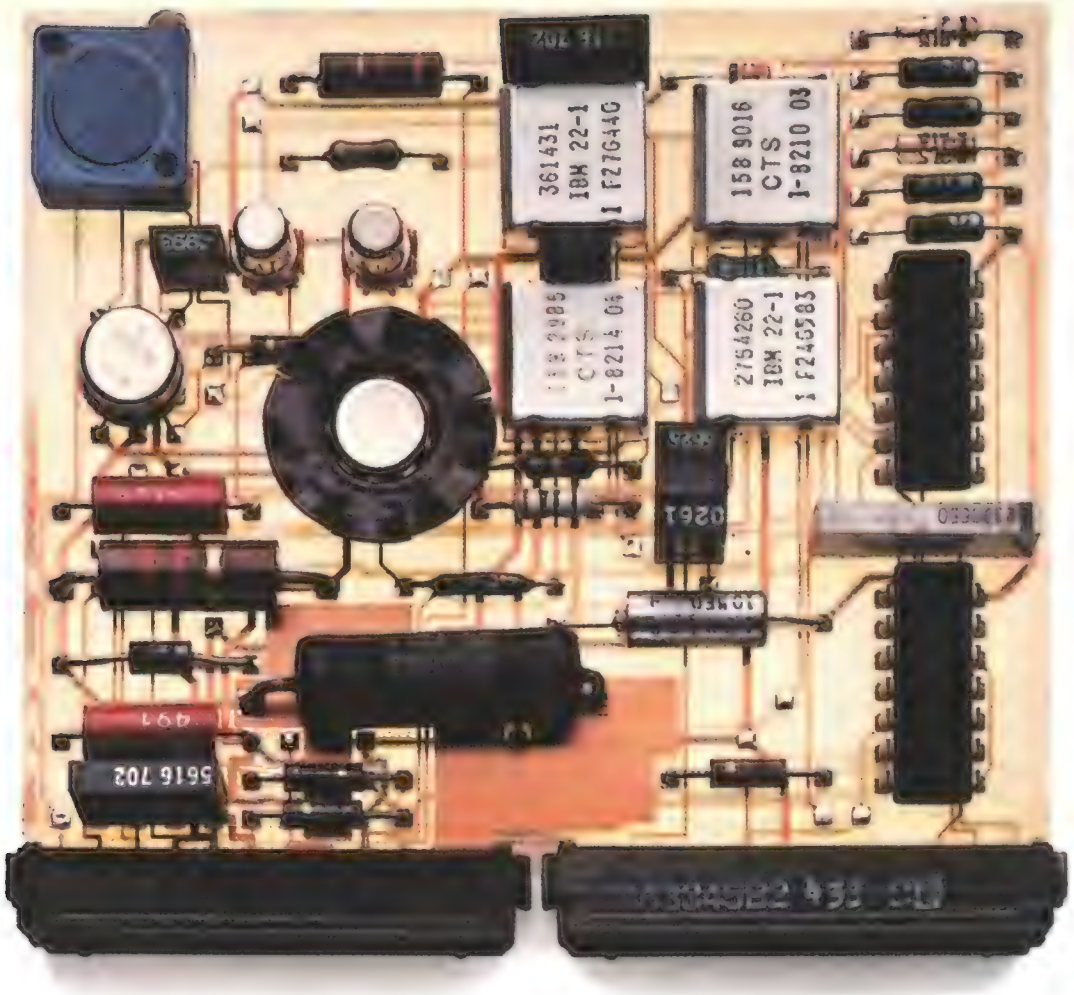
to hope for. And what more might there be? Only the sense of duty ground into generations of French schoolteachers kept him from rushing to the site. He had a two-hour class of philosophy that morning, and an hour of French and an hour of Latin. They were the longest four hours of his life.

When he finally got to Vix, he set to work carefully, professionally, scraping away at what was indeed a massive bronze object. Bulging eyes came peering out at him, and then there were vicious teeth and a protruding tongue. It was a familiar subject in Greek art, a Gorgon, one of the horrid sisters whose look could turn men to stone. They were often found on the handles of vases. And this was a huge handle indeed: it weighed more than a hundred pounds, and had broken clean off its vase. This was a sensational find in itself, but it promised more. As they dug away, the vase began to appear, a vase of a size that neither Joffroy nor any other scholar had ever seen, a vast bronze receptacle standing more than five feet high. It had another handle, still attached on the opposite side, with an equally hideous Gorgon. There was a procession of soldiers and chariots around the neck. There was a bronze cover to fit its mouth, with a superb female figure standing in the middle (p. 150). It was all in bronze of the highest workmanship. And though banged and battered by the collapse of the roof above it, it was in a remarkable state of preservation. It did not take Joffroy long to realize that he had found a unique object, the biggest metal object that has come down to us from classical antiquity.

There was nothing unusual about the shape of this object. It was a krater, a bowl for wine such as were produced in great quantities in the workshops of Greece and southern Italy. Wine was in those days a strictly Mediterranean product; the famous vines of Burgundy were not to be planted for many centuries to come. It was a mark of civilization that set people like the Greeks apart from the barbarians of the north, who could produce nothing better than beer. The Greeks always mixed their strong

Joffroy (in coveralls) and others look at the newly unearthed krater, which had been damaged by collapse of roof over it.



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The krater, which dates from the last quarter of the sixth century B.C., is the largest metal vessel from classical antiquity ever found.

resinated wine with water in a krater before ladling it out into individual drinking bowls. It was one of the traits of the barbarians that they drank their wine straight (or so the Greeks said, and chemical analysis of traces of wine found in kraters in France and Germany seems to back them up) in order to get drunk faster. Kraters very similar to the one at Vix have been excavated in scattered places from southern Italy to southern Russia, and can be found in museums throughout Europe. What was unusual, unique, about this one was its size. The other kraters with which Joffroy was familiar stood about two feet high. This krater stood almost as tall as a man, and if it was filled to the brim it would hold more than 300 gallons. No one had ever heard of a metal container this big.

But yes, when Joffroy came to think of it, they had. Herodotus had written in the first book of his *History* of how the Spartans, having received rich gifts from Croesus, king of Lydia, along with an offer of alliance, expressed their gratitude by making for him a bronze bowl covered with figures around the outside of the rim and capable of holding 300 amphorae. (The ordinary small Greek amphora could contain about a gallon of wine.) The passage had often been cited as an example of the credulity of Herodotus, the "father of lies," his uncritical acceptance of the most absurd bits of gossip. Now there was a physical object which almost exactly fitted Herodotus' description.

As they went on working their way, "spoonful of mud by spoonful of mud," as Joffroy puts it, for more than 170 hours, the team of archaeologists that had hurriedly mobilized

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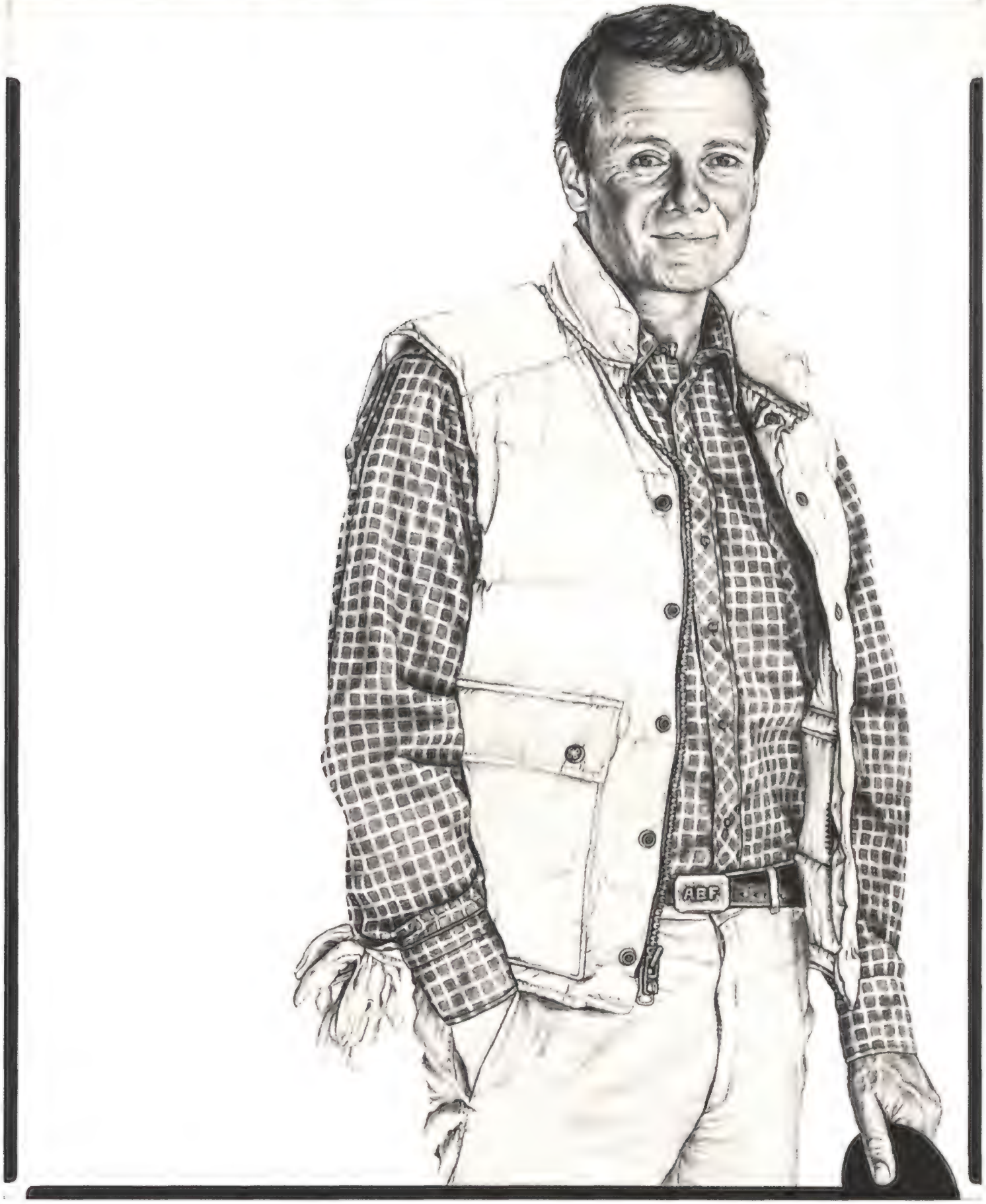

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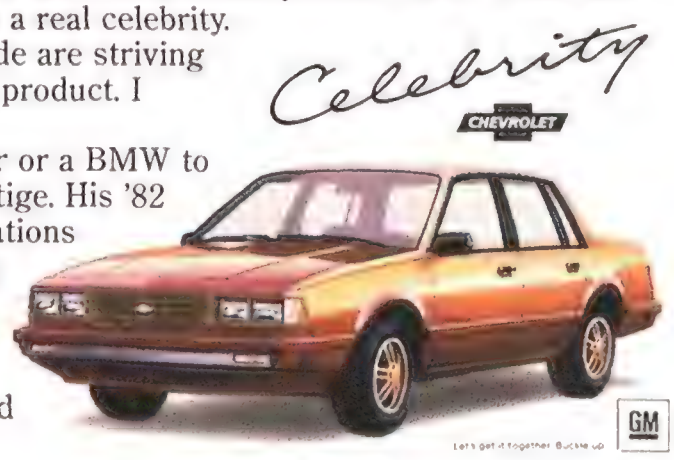

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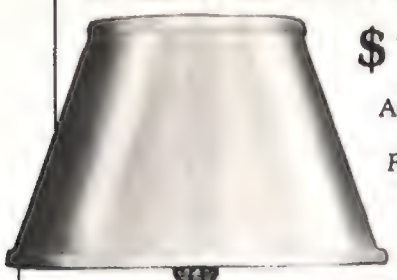

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for the task found that they had worked their way into a funeral chamber measuring about 35 cubic yards, of which the vase occupied one corner. This tomb had been dug into the ground and lined and roofed with wood before the erection of the tumulus. It must have been done during an unusually dry season. Water from the Seine was quick to seep in, soon rotting the timbers of the roof (but preserving the metal objects), and the tumulus collapsed into the tomb.

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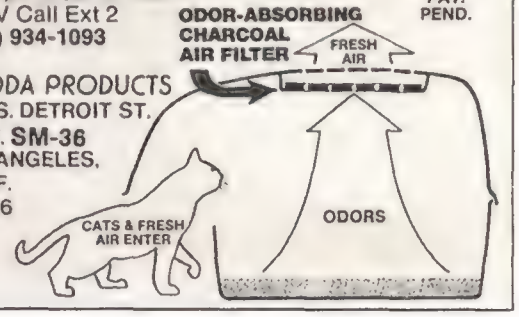

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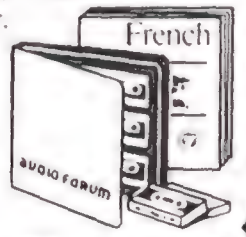

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world. There was an Etruscan bronze pitcher for scooping wine, there was a magnificent Attic drinking cup (p. 156) decorated with black figures of Greeks and Amazons fighting. The schist bracelets were probably made from stones quarried some 60 miles away. The amber came from the Baltic or the Adriatic, the coral from the Mediterranean. The gold diadem was a mystery (p. 152). It weighed about a pound and had a pure, elegant shape, too simple and unadorned to have come from any Greek or Etruscan or local Gaulish workshop. Joffroy thinks the clue to its origin can be found in the tiny winged horses at the ends where the band rested behind

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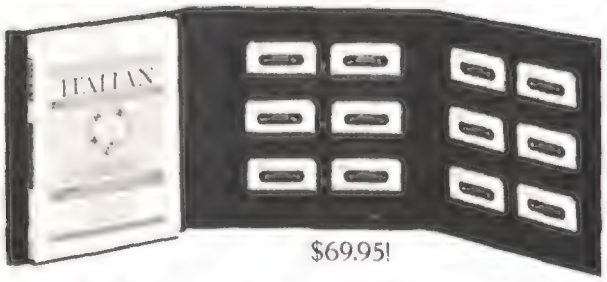

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Unusual gold diadem, which weighs a little more than a pound, was found clasped around the skull of the lady of Vix.

the lady's ears (p. 154). These were not the slender, nervous horses of Mediterranean art, but the thick-necked, long-haired horses of the steppes. The diadem was possibly made by craftsmen working in one of the Greek trading colonies on the north shore of the Black Sea.

Among all these treasures, the krater remains the centerpiece. It must rank as one of the great pieces of metalwork of all time. Its body is a single sheet of bronze, nowhere more than 1.5 millimeters thick. The technical difficulties of producing something on this scale and of this delicacy, not to speak of transporting it over hundreds of miles of rough tracks, called for superbly skilled and confident craftsmen.

Around its neck marches a procession of seven heavily armed foot soldiers with elaborate Corinthian helmets and eight chariots with driver and team of four horses (p. 148). All these figures were cast separately by the lost-wax process, which meant that only one cast could be made of each, and therefore each one had its own individuality.

Where did it come from? It was most likely made in a workshop of Sicily or southern Italy; many fragments of similar pieces have been found in those regions. It is in the purest Greek style, sober and supple and self-assured—a style which some think is typical of sixth-century Sparta, and Sparta had colonies there. The gift of the Spartans to Croesus must have been of the same general type, although it is doubtful that this is the one of which Herodotus wrote. He reports there were two stories of what happened to the krater. According to one, it was stolen by the Samians while the Spartan envoys were bringing it to Lydia. According to the other, the Spartan envoys learned while they were en route that Croesus had lost his throne and his liberty to the Persians, whereupon they sold the krater and reported back home that it had been stolen.

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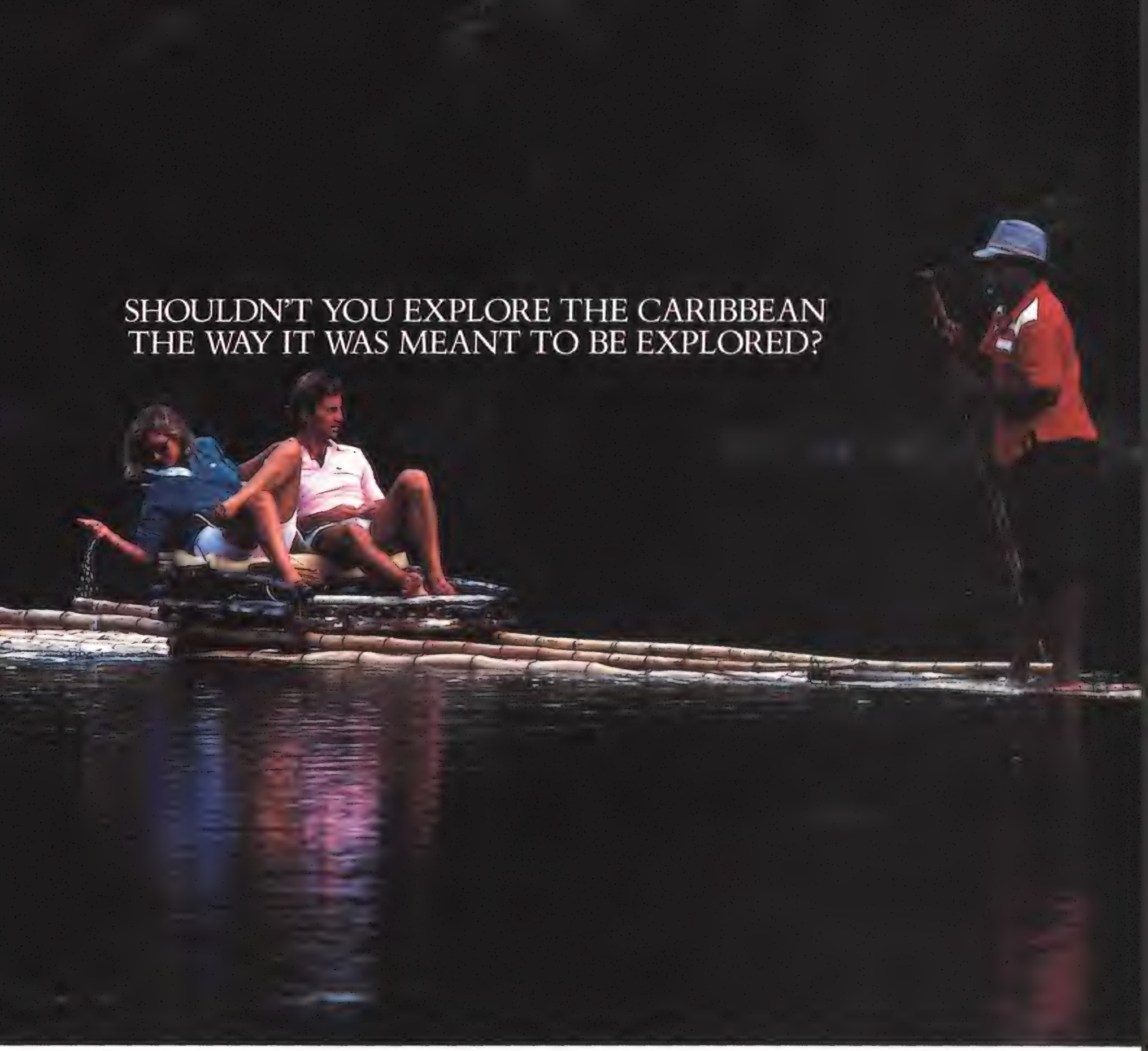
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in central Europe by groups of people of different origins who came to share certain forms of social organization and a common language or group of languages. In the next historical period, called La Tène after a site in Switzerland, they called themselves Celts. Historians cannot agree whether to call the Hallstatt people Celts or pre-Celts or proto-Celts. At all events, they burst noisily into history because they were the first people north of the Alps to introduce the skills of the Iron Age. One of the places where they settled down was on Mont Lassois. Whether by accident or design, they found themselves located at one of the economic nerve centers of the Continent.

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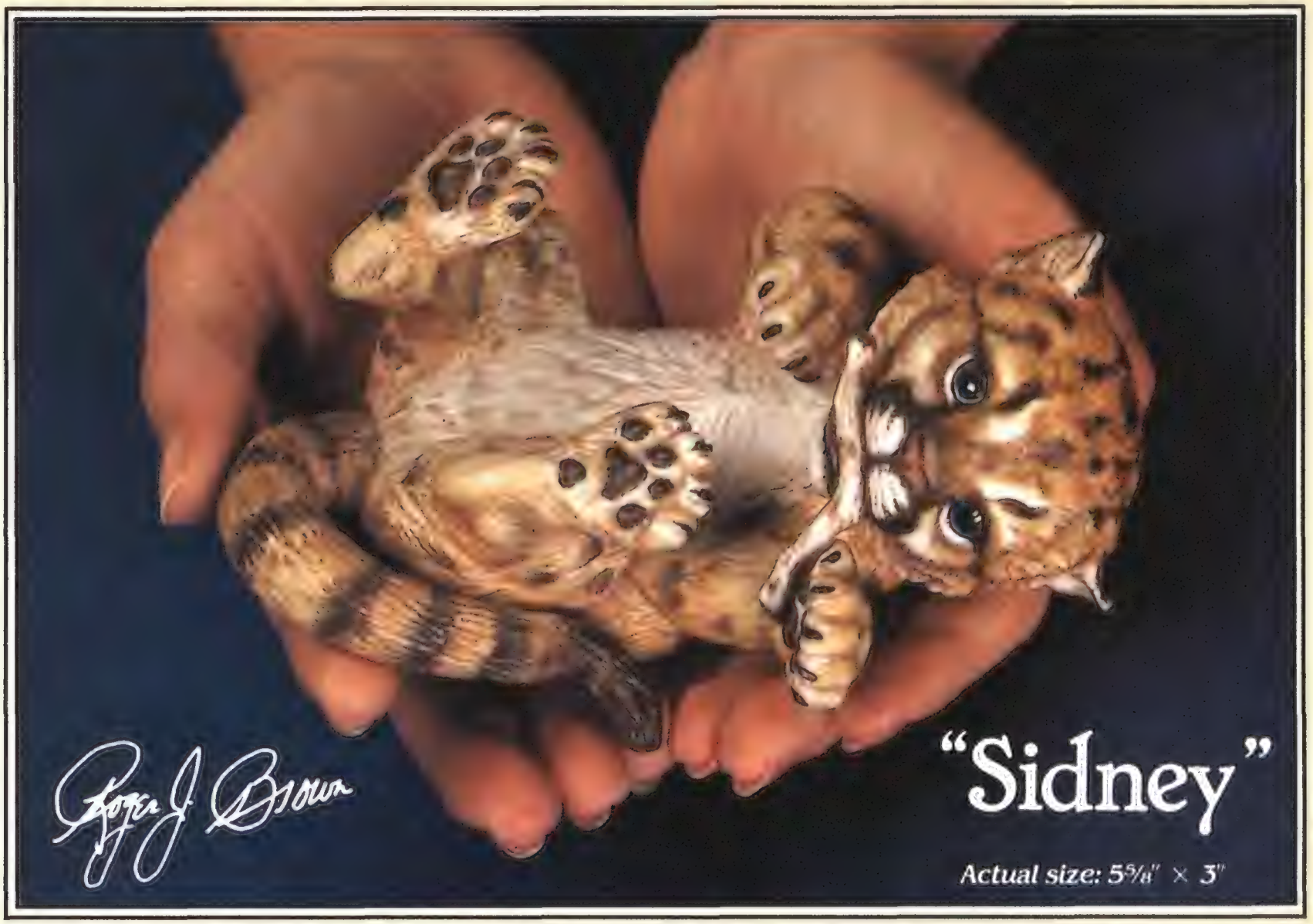

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It has been three years since Roger Brown has offered a baby animal figurine, and thus the "birth" of "Sidney" is causing a stir among collectors who know that many Brown works – especially his first-issue "Akiku" seal figurine from 1978 – have appreciated significantly in value in the market place.

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places like Cyprus (which gave copper its name), but to harden the copper they needed to alloy it with tin, and it is believed tin came primarily from distant Britain, an island wrapped in perpetual mist and mystery. The tin came from Cornwall; it was transported by boat from one middleman to another along the south coast of Britain, across the straits of Dover, then along the rivers Somme, Oise, Seine. The Seine ceased to be navigable just at the foot of Mont Lassois, and the tin had to be unloaded there for an overland journey to the south. In their oppidum at the top of the hill, the Hallstatt warriors could see the boats coming from a good way off, and they were ready by the riverbank to demand a substantial toll for the passage of the goods through their territory. Whoever ruled here would have had no difficulty piling up enough money to afford the best that the lands to the south had to offer in the way of works of art.

The merchants who came to Mont Lassois were undoubtedly of Italic stock—Etruscans, says Joffroy. There may have been some importation of wine from the Greek city of Massilia (Marseilles), but the presence of innumerable fragments of goods along the Alpine passes like the Great Saint Bernard proves that the bulk of the traffic originated in northern Italy, then dominated by Etruscan city-states. Year after year their traders came with their precious cargoes, and the ladies of Mont Lassois could sparkle in the latest fineries while the unmixed wine went gurgling down the throats of the warriors.

Then all at once all prosperity, all life, stopped at Mont Lassois. Within a score of years of the burial of the lady of Vix, the whole site had been abandoned. There was no violent commotion, no battle or fire. The people of Hallstatt IID simply faded away. They had been caught, says Joffroy, by two historical mutations over which they had no control.

They must have always worried

that someone would find an alternate route for the tin. They had to set up a watchtower where the Yonne flows into the Seine to make sure that no sneaky traders would try to make a detour by the smaller stream and avoid their tolls. But now the Carthaginians had found a totally new, all-sea route to Britain through the Strait of Gibraltar and around Spain. It was faster and cheaper than the overland route with all its unloadings and transshipments. The old tin road withered away; the watchmen on Mont Lassois saw no more boats coming upstream.

And about the same time, the Celts of the La Tène culture were breaking loose on the cycle of invasions and plunderings which would shake the world for the next century or so, in which they would attack Delphi in Greece, burn Rome, weaken the power of the Etruscans. The La Tène armies contained ranks of heavily armed infantry. This new kind of war machine overwhelmed the Hallstattians the way the hoplite infantry of Greece was at about the same time overwhelming the Persians.

The world forgot about Mont Lassois. It forgot about the lady of Vix, and she was safe in her new home. There was no one left around to recall that there was a treasure hidden under that pile of white stones by the riverside. No one came to disturb her in her waterlogged and soon rubble-filled chamber. Dormice nested in her bronze pitcher.

The tomb remained quiet until René Joffroy dug his way into it in 1953. He became a famous archaeologist overnight, and today he is curator of the charming little museum in a Renaissance house in Châtillon-sur-Seine. Here he presides over a magnificent collection of ancient tools, statues and household goods from the area, where he led excavations for many years. But the visitors, 30,000 a year, come to see the treasure of Vix which he dug up in his youth in the snow. He gets around with difficulty

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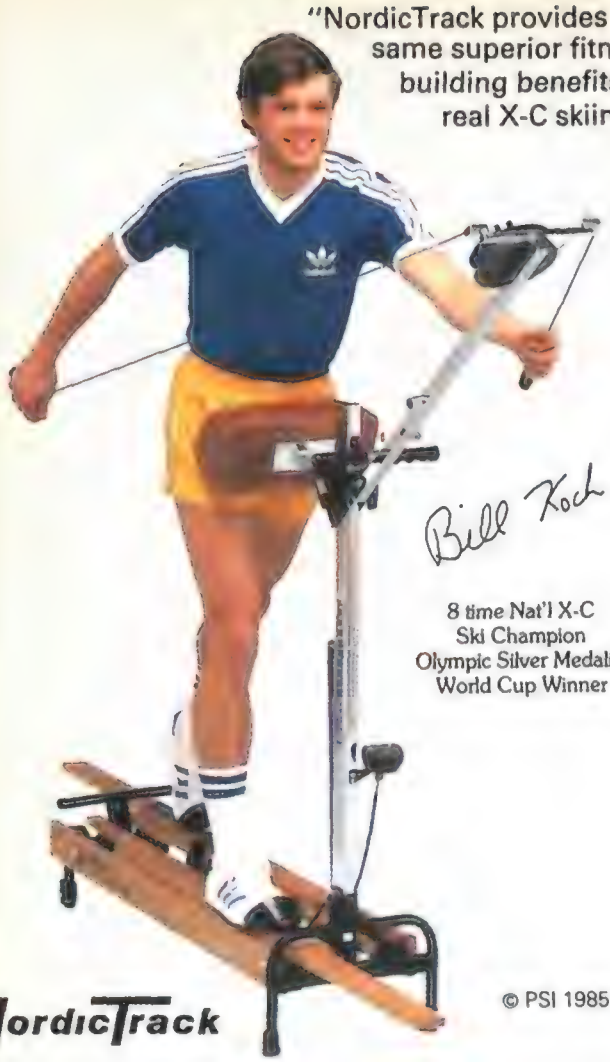

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these days; he is slowed down by rheumatism (for the climate hasn't changed for the better in Burgundy in 2,500 years) but he is always ready to hop up on the platform marked KEEP OFF and trace with loving fingers the exquisite lines of bronze warrior and horse. He knows each subtle variation that enabled the master craftsman to give a sweep of orderly movement around the neck of the krater. He was the first person to notice that, in a desire not to get his composition too clogged up, the artist had quietly omitted some horse legs from his chariot teams so that the four horses have only 14 or 15 legs between them.

What he is proudest of is that the krater is in Châtillon at all. When it was found, it was recognized as a national treasure and the greedy mouth of the Louvre opened to swallow it up. But Joffroy insisted that the lady belonged on her home ground, and there she remains, whether princess, priestess or bawd, one of a long line of captivating Frenchwomen who have helped light up some of the dark corridors of history.

Building in the background houses Archaeological Museum of Châtillon. An Etruscan basin, one of three from the tomb, lies in foreground.

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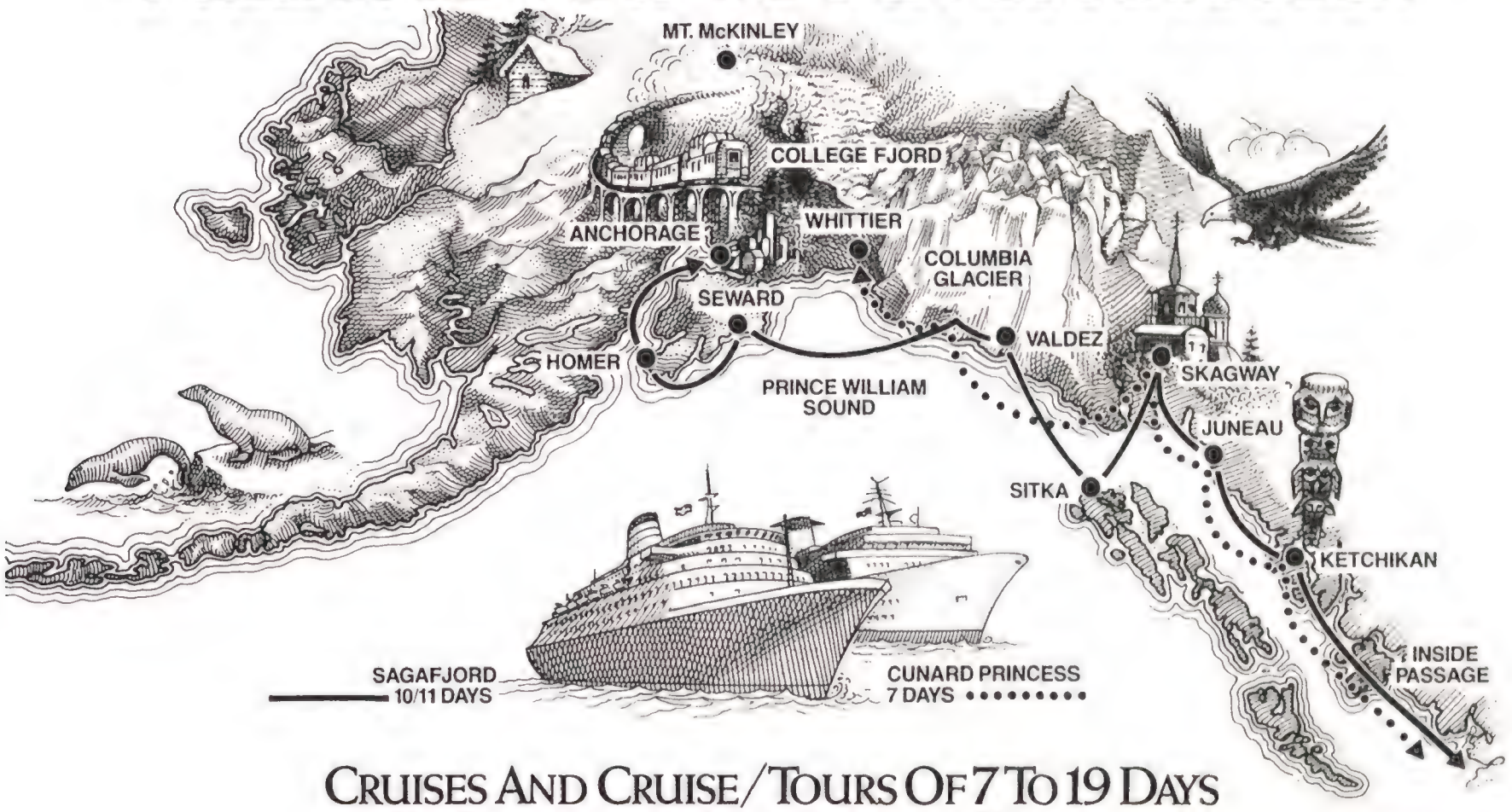

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By Robert Parrish

Fact meets fiction in a World War II celluloid face-off

Working for director John Ford in the OSS, a young filmmaker received a valuable education

pro-pa-gan-da \ *n* ideas, facts, allegations spread deliberately to further one's cause or to damage an opposing cause

Before the war I worked in the cutting rooms of several Hollywood studios. While I was working on *Grapes of Wrath*, I joined a Navy reserve unit that John Ford, the director, had organized in case the United States should become involved in the war. I had known Ford since I was nine years old, worked for him as a child actor in *Mother Machree*, *The Informer* and other movies and, later, as a film editor.

John Ford, shown here aboard a freighter, gave his young assistant Robert Parrish some no-nonsense lessons and this autographed picture.

The day after the Japanese attack on Pearl Harbor, Ford's unit was called to Washington and assigned to the forerunner of the Office of Strategic Services (or OSS), a newly formed intelligence organization under Col. William (Wild Bill) Donovan. Aside from combat photography, our job was to make films for internal OSS use—*How to Operate Behind Enemy Lines*, *German Industrial Manpower* and so on. Another job was to make films for other government agencies and, at Colonel Donovan's discretion, for the public.

The first film we made for the public was a factual combat report of the Battle of Midway in the Pacific in June 1942. Ford had personally photographed the action. He assigned me to edit the film and I asked him what kind of picture he had in mind, did he want a propaganda picture? He looked at me a long time, looked away and looked back at me. Then he lit his pipe, which usually took about two minutes. This time it seemed more like two hours. Finally, he said, "How do you spell that word?" I spelled it for him and he said, "Don't ever let me hear you use that word again in my presence as long as you're under my command."

I saluted and said, "Yessir." I had been saying "Yessir" to him for 17 years, so I figured one more wouldn't hurt, especially when he was a Lieutenant Commander and I was a Second Class Petty Officer. "And don't salute me unless you have a hat on," Ford said. I said "Yessir" again and he lit his pipe again.

"The picture is for the mothers of America," he said, finally. "It's to let them know that we're in a war and that we've been getting the hell kicked out of us for five months, and now we're starting to hit back. I want the mothers of America to see how brave their sons are."

Article continues on page 166

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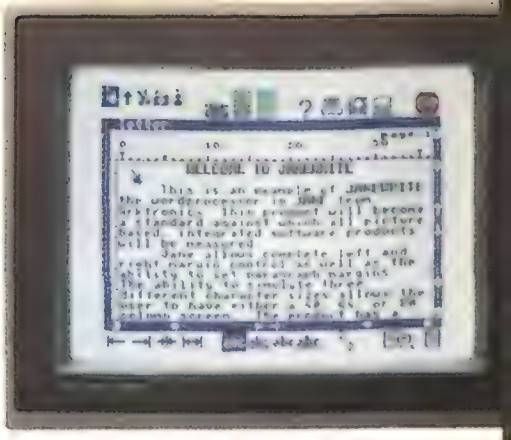

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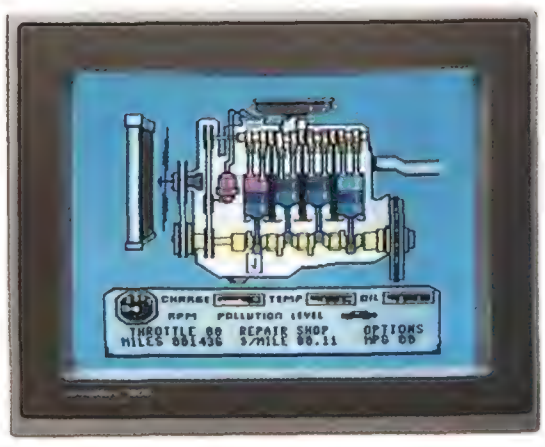

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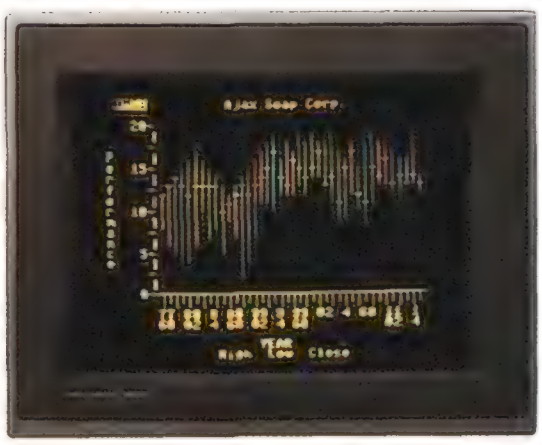

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I edited an 18-minute film, showed it to Ford, and he had me deliver it to the White House. That night he ran it for the President and Mrs. Roosevelt, Admiral Leahy, Harry Hopkins and press secretary Stephen Early. When the film ended and the lights went up, there were tears in Mrs. Roosevelt's eyes. The President turned to Admiral Leahy and said, "I want every mother in America to see this film." Many of them did, including some who must have been voters at the Academy of Motion Picture Arts and Sciences, which awarded *The Battle of Midway* an Oscar.

In 1943 Ford assigned me to make a film about the National Gallery of Art. The Gallery had opened in 1941 and was considered one of the wonders of the art world, but I didn't see what that had to do with the war effort, especially when there were rumors of an imminent invasion of the European continent.

"We will eventually invade the Continent," said Ford. "General Donovan and the State Department have decided that, after the initial assault, the Allied forces will have to dig in and prepare for the advance into Holland, Italy, France or wherever the assault takes place. We will have to deal with the local population from a public-relations point of view. Americans are not necessarily loved by everyone in the world."

"No, I guess not," I thought. "Especially after we've subjected them to penetration bombing for several weeks."

"I think the invasion will probably be somewhere along the French coast," said Ford. "The French are cultured people, even the peasants. We don't want them to think we're barbarians, do we?"

"No sir, I guess not," I proffered.

"So the idea is to make a short picture that has nothing to do with the war and issue 16-mm prints and pro-

Director-writer Robert Parrish, living in Sag Harbor, New York, won an Oscar for editing Body and Soul.

jectors to all combat units, and they can show the movie to the locals wherever they happen to be billeted."

I tried to picture some G.I.s rounding up a bunch of war-weary French peasants, showing them a movie about an art gallery, and I wondered if it would prove that we were not barbarians.

"Get over to the National Gallery the first thing in the morning, look it over and report back to me tomorrow afternoon. Lieutenant Arling will be your cameraman. He's very good with color. He was trained at Technicolor."

I knew Arling. He was a first-rate cameraman. "Who's the boss?" I said.

"You know there's no boss in this organization," said Ford. He relit his pipe. "Except me."

"I mean, who's in charge of this art gallery project?"

Ford said, "What's your rank?"

I said, "Petty Officer Second Class." Ford didn't say anything, so I said, "Sir."

"What's Arling's rank?"

"He's a full lieutenant, sir."

"Any more questions?" said Ford.

The National Gallery of Art was housed in a beautiful building. They were having the most comprehensive exhibition of 19th-century French paintings ever shown in America. In the early days of the war, before the Nazis had occupied Paris, some of the finest paintings from the Louvre and other museums, as well as from private collections, had been sent to America for safekeeping. Great works, starting with Bonnard and all the way down the alphabet to Vuillard, were represented. When Lieutenant Arling and I were shown just a sample of the vast collection, I thought Arling would have a stroke. He wanted to shoot thousands of feet of color film of every painting in the building. I pointed out that we would wind up with a 40-hour movie to show to the French peasants and he said, "Give me a better idea."

I had been to the basement and seen the new, unique air-conditioning unit. It was all shiny—gray, black and white and dark gray and looked like a futuristic movie set. I led Arling down and showed it to him. "Why don't we start here?" I said.

"It's extraordinary, but it's all black and white and gray," he answered.

"Exactly."

"My specialty is color."

"Of course it is, but that will come later, after you have made some of the most beautiful abstract black-and-white shots since *Citizen Kane*. The contrast when we go upstairs and burst into color for the second half of the movie will be sensational."

He finally agreed and that's the way we shot the picture. I edited it, put Chopin's *Revolutionary Etude* over the black-and-white "revolutionary" air-conditioning unit and Debussy's *Prélude à l'après-midi d'un faune* and other colorful piano compositions over the explosion of color upstairs. The effect was quite stunning. Of all the great paintings at our disposal, we featured *Man Spreading Manure, Woman Feeding Child* and other works by Jean François Millet because he had been born in the hamlet of Gruchy, on the west coast of France, where Ford expected the invasion to take place.

Lieutenant Arling and I showed the 20-minute film to Ford, he showed it to General Donovan, and Donovan showed it to anyone in Washington that he could get to sit still for 20 minutes. Everyone was delighted. The Field Photo Branch of the OSS, a *combat* unit, had made a "lyrical, artistic film!"

"If that doesn't show the French peasants that Americans are cultured, nothing will," said Donovan. A print was rushed to the OSS headquarters in London with instructions to show it to General Eisenhower.

A few days later, Ford read a coded cable to me and Lieutenant Arling: "MAN SPREADING EXCELLENT MANURE. CONGRATULATIONS. GALLIC NEXT OSSLON." When decoded it read, "NATIONAL GALLERY FILM

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EXCELLENT SHOWING TO DE GAULLE AND MALRAUX OSS LONDON." Ford shook our hands and said, "Well done, lads." A week later Ford was promoted to full Commander, Arling was given a Letter of Commendation and I was promoted to Petty Officer First Class.

And that's the last I heard of the National Gallery of Art film until three weeks later, when Ford called me into his office. Lieutenant Arling was away on leave and this was the first time I had seen Ford since my promotion. He handed me a long, coded message that started, "URGENT MAN SPREADING MANURE . . ." I turned to the next page that was the decoded version. "Read it aloud," said Ford.

I started to read: "FRENCH OUTRAGED BY NATIONAL GALLERY. . ."

I stopped reading. The next word was "PROPAGANDA" and I remembered Ford's order about not mentioning the word as long as I was under his command. I didn't know where else to look, so I looked at Ford's feet. He was wearing dirty tennis shoes with his navy blue Commander's uniform. "Go on," he said.

"It's a word I've been ordered not to say, sir."

"Start over and say it anyway."

I said, "Yessir," and started to read the message again:

"FRENCH OUTRAGED BY NATIONAL GALLERY PROPAGANDA FILM THEIR OPINION IF SHOWN TO FRENCH PEASANTS SAME WOULD THROW ROCKS AT SCREEN AND SCREAM 'BARBARIAN AMERICANS HAVE STOLEN FRENCH MASTERPIECES' URGENT YOU LOCK UP ALL COPIES AND THROW AWAY KEY UNTIL AFTER WAR LONDON COPY ALREADY DESTROYED OSS LONDON." At the bottom, in someone's handwriting, was scribbled, "Chopin was Polish, not French. His father was French."

Ford didn't usually show his emotions, but I could tell he was sad. "I see you have an extra stripe," he said.

"Yessir," I answered.

"You earned it," he said. "What are you working on?"

"The Industrial Incentive film for the Navy Department."

"Well, stop what you're doing, round up every scrap of material connected with the National Gallery of Art film, lock it up in the vault and bring me the key."

"Yessir," I said. I started to leave and Ford said, "Did you think you were making a propaganda film?"

"Sort of," I said.

"Well, you weren't," said Ford. "You made an honest film and you should be proud of it."

"Yessir," I said.

A short time later, Commander Ford invited me to his private projection room to show me a German film that one of our field men had brought in from Portugal. The film opened with the title, *America, the Beautiful.* The song of the same title was being sung by Bing Crosby on the sound track:

"O beautiful, for spacious skies,
for amber waves of grain . . ."

On the screen were newsreel scenes of violent attacks on defenseless blacks by club-wielding policemen during the Detroit race riots in 1943. After one slow-motion close shot of a black head being split open, there was a close-up of President Roosevelt laughing heartily. Bing sang on:

". . . for purple mountain's
majesty . . ."

Then came newsreel scenes of women wrestling in a boxing ring filled with mud and other women wrestling in a ring filled with dead fish. Intercut with these shots, there were close-ups of Mrs. Roosevelt, dressed for the opera, smiling and applauding politely.

". . . across the fruited plain . . ."

The last scene is a newsreel shot of the Roosevelt family gathered around a table at Hyde Park for their annual Thanksgiving Day dinner. As Roosevelt reaches out to carve the turkey, the camera cuts to a close-up of the turkey, which dissolves to a close-up of a global map of the world. The knife comes in and slices off the Scandinavian countries and puts them on a plate, which Roosevelt hands offstage. The camera pans up from the plate to a smiling close-up of Prime Minister Winston Churchill.

". . . America, America, God shed
his grace on thee . . ."

Cut back to the globe. Camera follows as President Roosevelt slices off Italy, puts it on a plate and holds it out to a dour-looking General de Gaulle, who nods and salutes President Roosevelt.

Cut to close-up of President Roosevelt. He puts a cigarette in a long holder in his mouth at a jaunty angle and smiles happily.

". . . and crown thy good with
brotherhood, from sea to shining sea!"

The scene faded out. The projection room was pitch-dark. Ford struck a match and lit his pipe. When it was well lit, he puffed a few times, turned his shadowy head to me and said, "*That's* a propaganda picture." He got up and walked out, leaving me in the dark room.

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Points of origin

The lives and the languages of past inhabitants are often hidden in seemingly strange names of places

When tea is served in the small village of Crackpot in Yorkshire, England, one might imagine the host to be a mad hatter. But the name Crackpot has nothing to do with harebrains. From the Old Norse word for crow, *kraka*, and the Middle English for a hollow in the landscape, *potte*, it simply meant a ravine where crows used to gather.

It doesn't mean that anymore, of course. As with so many other place-names, the word has outlived its original significance. It's just a place. Still, it's a fine place-name, uniting as it did two languages and two different cultures.

Actually, the study of place-names has a distinguished past and is an important tool in linguistic, archaeological and historical research. Place-names are sometimes the sole remainders of long-lost languages, the only vestiges of past inhabitants.

For example, the suffix *tūn* originally meant a fence or enclosure, so a name like Thornton signified a place surrounded by thorn trees of some sort. And Bickerton meant a beekeeper's enclosure or farm. Gradually, the suffix progressed from enclosure to homestead or farm to village to town, and we have a name like Sutton meaning south town.

Likewise, *wīc* meant a dwelling, village, farm, or more specifically a dairy farm, so that Fenwick was a dairy farm in the marsh (*fen*), and Cheswick meant cheese farm. Since a *lēah* was a wood or a clearing in a wood, Healey was a high clearing, and Briarley, one where briars grew. Similarly, any place that ends in *ness* is literally a nose, a promontory jutting out into a body of water, as in Dungeness. Such suffixes are Old English survivals, spread to the new land by immigrants fondly recalling the British Isles.

The dean of American place-name studies was George R. Stewart (1895-1980), whose classic *Names on the Land* attests to the ingenuity, struggle and just plain luck connected with our geography. Did you know, for example, that in 1847 a pitched battle was fought to change the name of San Francisco to the locally used Yerba Buena, or good herb, after a mintlike plant that grew there? Or that in 1777, when Vermont got its name, based on the new enthusiasm for French support during the Revolution, there was another uproar? Many people rightly complained that the name sounded more like "worm mountain" than "green mountain." In French, *ver* means worm, while green is *vert*.

By contrast, a river that passed through Vermont's Green Mountains, *Les Monts Verts* in French, pronounced "Lay Mon Vair," was anglicized into the Lemon Fair River. This is an almost mystical name, and one almost impossible to account for without a bit of fractured French.

First published in 1945, *Names on the Land* has recently been reprinted and deserves a spot on every American bookshelf. A companion volume by Stewart, *American Place-Names* (1970), is arranged like a dictionary and is a browser's delight. There you'll find a Faith, NC, a Hope, OR and a Charity Branch, KY. Faith was named in honor of a tyro businessman who opened a quarry with no experience, Hope is based on a personal name and Charity Branch probably recalls an early church on that site. A hook, line and sinker can also be found. Hook Brook, NJ, comes from the Dutch word for angle, which is *hoek*. Line Creek is situated near the Kansas-Nebraska border. And Sinker Mountain, OR, is derived from the tale of several hunters who were forced to eat heavy biscuits called "sinkers."

A more widespread knowledge of Stewart's work and of place-name studies in general might be a good antidote to those commercial developers who insist on giving names like Whispering Pines and Rose Haven to places that have seen neither a pine nor a rose. But that may be too much to hope for. False etymology and folk etymology can be rampant even among those who should know better.

Many accounts, for example, claim that Brooklyn, New York, means a place where the land was so irregular on its first maps that it was termed a "broken land." Or that it contained countless "brooks." Actually, the Algonquin Indians had called it Meryckawick, meaning a sandy place. In 1638, the Dutch settlers called this sandy place their Bruijkleen Colonie, a name derived from two words that together meant "a free loan," or in our parlance "homestead" or "tenanted land."

Inside the larger colony, the homesick Dutch simply named Breukelen Village after a small town near Amsterdam. When the British took charge of the area in 1664, the name began to shift according to its sound. Unable to get their tongues around the Dutch pronunciation, the English began using Brookland. Later, the switch to Brooklyn was dictated by a subtle change in sound—much as many people today say the name of my own home state, Maryland, as Marilyn.

One of the five boroughs of New York City, The Bronx is unique as a place-name that includes the definite article. (In English, that is. There are many Spanish and French examples; think of Los Angeles and La Crosse, Wisconsin.) It is always The Bronx, never just a naked Bronx. According to Stewart, this usage dates from the 17th century, a time when a man named Jonas Bronck farmed a stretch of land north of Manhattan Island. When people back then said they were going to the Broncks', they really meant it. But even after the family was long gone, the Manhattan phraseology was retained. The slight spelling simplification followed in due course.

Most often, place-name study is a matter of linguistics, or philology, as it used to be called—especially in the Old World. In England, the landscape has frequently been likened to a palimpsest, a parchment or other writing material that has had old ink scraped off and new words overlaid on top. Look closely enough, and you can sometimes see those old layers of meaning.

The land has seen a succession of peoples. Prehistoric Britons and then the Celts were conquered by the Romans, who were supplanted by the Saxons and other Germanic tribes, who were invaded and subdued by the Vikings, who were overcome by the Normans in 1066. They all spoke different languages and had different ways of referring to the same landmarks.

Consider the city of York. This settlement, at the junction of the Foss and the Ouse rivers, must have been noted for its

His family gathered around him on that chilly November day to bid him final farewell. Papa put up a brave facade.

He sensed his brother's awkwardness when they embraced. And, most clearly, he felt a pang of sadness as he looked for one last time into Mama's tearful eyes.

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great yew trees at one time because the Celts called the spot Eburacon, likely derived from their word for yew, *eburos*. The Romans, following them, called the place Eboracum, which in turn became the Old English Eoforwīc, a compound, it seems, of *eofor* (boar) and *wīc* (village). The Viking invaders, who made the town a royal enclave in the ninth century, compressed the Old English into Iorvik, and later Iork, which finally became York.

The early written forms of town names on charters, the Domesday Book and other legal documents are vital in place-name research. Without such sources, for example, the English village of Fawler would rightly be associated with people who hunted birds. But a 1205 document shows the town as Fauflor, a name derived from the Old English phrase for a colored or variegated floor, *fāgan-flōre*. Why? No one knew until 1865, when an old Roman villa with mosaic pavement was unearthed. It had been lost since the early Middle Ages, a time when the first Saxon villagers were presumably astounded by the richness of that already old floor. But once the floor had been covered by the grime and dust of centuries, the village name and spelling reverted to something that might have made sense to the average farmer, hunter or fowler.

Is this imperfect process of naming still going on? The answer is yes; the best name changes continue to be created by our need to attach name tags to everything, and then to corrupt them through repetition, familiarity and, yes, even through lazy listening.

Evidence to this effect was recently uncovered by the sharp ears of English writer Richard Jerred. Not long ago, near his village in Devon, he heard two boys talking about a crop being harvested in Enklefield, clearly a geographical reference that implied a nearby site. Trouble was, local historian Jerred had never heard of a place with that name.

When he questioned them, the boys pointed across a valley to an area that had always been known to him as "Quarter-Mile Field." Then Jerred remembered: in April 1941, a Nazi bomber had crash-landed on that spot, and the carcass of the plane had remained long on the minds of the locals. So long, in fact, that the name Quarter-Mile had been supplanted by Enklefield. And all because of that infamous bomber, a Heinkel 111.

Michael Olmert

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Atari Explodes

Atari's new computer serious threat to Macintosh. Will the Amiga survive?

The Atari 520 ST is a serious challenge to the Apple Macintosh and will open up a major fight in the personal computer market.

By Joseph Sugarman

Imagine this. If I could offer you a Macintosh computer—(a computer that sells for over $2000)—for one third the price, you might wonder.

But what if I offered you a better computer with none of the disadvantages of the Mac and what if I added new features which improved its speed and performance? That's exactly what Atari has done in an effort to grab the ball from Apple and really explode into the personal computer market.

HEADING EFFORT

Heading the effort at Atari is Jack Tramiel—the same man who built Commodore into a billion dollar corporation, sold more computers than any other man in the world and believes in giving the consumer incredible value without sacrificing quality. The new Atari is a perfect example.

First, let's compare the new Atari ST to the Macintosh and the Commodore Amiga. Sorry IBM, we can't compare the ST to your PC because yours is almost five years old, much slower, and, in my judgement, over priced.

Price The cheapest you can get the Macintosh with 512K of memory is $1800 with a one-button mouse, a disk drive and a monochrome monitor. The Amiga sells for $1995 with a two-button mouse, a disk drive and a color monitor. The Atari ST sells for $699 with a two-button mouse, a disk drive and a monochrome monitor and for $200 more, a color monitor. Read on.

Monitor With the Mac you can only use its 9" monochrome monitor and with the Amiga you can only use its 12" color monitor. With the ST you have a choice of either a 12" monochrome or high-resolution color monitor or your own TV set.

Resolution The number of pixels or tiny dots on a screen determine the sharpness of a computer monitor. The Mac has 175,104 pixels and has one of the sharpest screens in the industry. The Atari ST has 256,000 pixels or almost a third more than the Mac. And the Atari color monitor compared to the Amiga in its non interlace mode is 128,000 pixels or exactly the same.

Power All the computers have a 512K memory with a 68000 CPU operating with a 32-bit internal architecture. But Atari uses four advanced custom chips which cause the CPU to run faster and more efficiently giving it some tremendous advantages. For example, it has a faster clock speed of 8Mhz compared to the Mac's 7.83 and the Amiga's 7.16. And the speed of the unit is hardly affected by the memory requirements of the monitor which in the Amiga can eat up much as 70% of the unit's cycle time or speed.

Keyboard This is the part I love. The Mac has a small 59-key keyboard and a mouse. That's all. The 95-key Atari has both a mouse, cursor keys, a numeric keypad and ten function keys. The keyboard looks fantastic and is easy to type on. Although the 89-key Amiga has almost all the features of the Atari keyboard, it looks like a toy in comparison. (Sorry Commodore, but that's my opinion.)

Disk Drive The Mac's 3½" disk drives run at variable speeds—slowing down as they run. The Atari 3½" drives run faster at a constant speed—and quieter than any other unit.

Features The Atari ST comes equipped with the same printer and modem ports as the IBM PC—a parallel and RS232C serial port. The Mac comes only with a tiny non-standard serial and modem port. The ST has a hard disk interface capable of receiving 10 million bits per second. There are two joy stick ports and a 128K cartridge port for smaller programs or games. It has 512 colors (for the color monitor), it has a unique MIDI interface into which you can plug your music synthesizer and record or play back your music.

Software Right now, the Mac has more than the Atari ST and the Amiga combined. The Atari is a new system but the track record of Atari's Jack Tramiel and the potential of the new unit is causing a flood of new software titles. In fact, I'll predict that eventually the Atari will have more software than the Mac. There are now hundreds of titles, from word processing to spread sheet programs, from graphics and games to data base management—all with those easy drop-down menus and windows. There's plenty from which to select now and plenty more to come.

If you think I'm enthusiastic over the ST, listen to what the press is saying. *Byte Magazine* just called it the "Computer of the year for 1986." *Creative Computing* exclaimed, "Without question, the most advanced, most powerful micro computer your money can buy." and finally, the Atari ST is the best selling computer in Europe and acclaimed, "The computer of the year," by the European personal computer press.

I am going to make the ST so easy to test in your home or office that it would be a shame if you did not take advantage of my offer. First, I will offer the computer itself for only $299. You will need, in addition, either one or two disk drives and either an Atari monochrome or color monitor or your own TV. If you order with your credit card during our introduction I will ship your order and only bill you for the postage and 1/3 the purchase price. I will also add a few software packages free including "Logo"—a beginners programming language, a disk for programming in BASIC and Neochrome—a graphics paint program.

COMPARE THE TWO

After you receive the Atari ST, put it next to your Mac or Amiga or even IBM. See how extremely sharp the graphics appear, discover what a perfect word processor it is, how great the keyboard feels and finally how much faster and quieter it runs.

If you're not convinced that the Atari is far superior to your present computer and a fantastic value, simply return it and I'll refund your modest down payment plus our postage and handling charges. If you decide to keep it, I'll bill your credit card account for the remaining balance and enroll you in our discount software club (a $50 value) that lets you buy software for up to 50% off the retail price.

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Book reviews

A Talent to Amuse: A Biography of Noël Coward
Sheridan Morley
Little, Brown, $24.95

The Noël Coward Diaries
Edited by Graham Payn and Sheridan Morley
Little, Brown, $15

Noël Coward (1899-1973)—actor, director, songwriter, cabaret artist, dramatist—is the kind of Grand Old Man of the Theater that the theater in a sentimental mood likes to contemplate. Coward himself, for all the dash of bitters in his composition, had a taste for the sugary. Sheridan Morley, his biographer, rather sweetly presents Coward as always in the right and always in the limelight—two places Coward very much liked to be.

The first edition of this biography, written with its hero's assistance, was published in Coward's lifetime. The 1985 version has a new Prologue and Epilogue, giving us at least one new anecdote. Eager to induce his subject at last to allow some reference to homosexuality in the account, Morley was elated to see that critic T. C. Worsley had revealed *his* taste without causing scandal and thought Coward might agree to do likewise. "Noël disagreed: 'There is,' he said memorably, 'one essential difference between me and Cuthbert Worsley. The British public at large would not care if Cuthbert Worsley had slept with mice.'"

Coward, steel-willed and charming, managed to convince his biographer that "his private life had indeed played remarkably little part in an existence almost wholly given over to work." Large parts of Coward's life remain in shadow; the companions of his voyages and homes are gray names and nothing more. The strength of the biography is in its factual account of the works (what was first put on where, and when) and in its picture of the public life Coward ostentatiously led.

The product of a lower-middle-class home (his father sold pianos as a traveling salesman), Coward entered the theater world young, his ambitious mother acting as his agent. From early appearances in children's plays in parts like Prince Mussel, he graduated to Slightly in *Peter Pan*. Micheál Mac Liammóir recollects, "Noël gave his usual rhythmic, debonair, mother-of-pearl brilliance to the part." Disdaining childhood, Noël already seemed sophisticated: "at fourteen he knew it all."

After a short and passive stint of service during World War I, Coward began the songwriting that was to be such a successful side of his career. His first play, *I'll Leave It to You*, was produced when its author was 20. In his melodrama *The Vortex* (1924), Coward played his Hamletish drug-addicted hero to great acclaim. *Hay Fever* (1925), the first of the classic light comedies, he wrote at age 25—by which time the author was already a distinguished figure.

The rush of achievements was interrupted briefly by a nervous breakdown in the winter of 1926-27. But even this Coward accomplished in style and comfort, being taken ill on a Pacific voyage and recuperating very agreeably in Hawaii. The boom years of the next decade were to end with World War II, which brought out Coward's effective talent for sentimental patriotism, as evinced in the play *This Happy Breed* (1939), the propaganda film *In Which We Serve* (1941) and the song "London Pride" (1941). But London Pride did not prevent Noël Coward from decamping in horror at the onslaught of postwar taxation. In 1956 he became a tax emigré, allowed to spend only 12 weeks a year in Great Britain.

Noël Coward, in Switzerland, almost 70: "The world has treated me very well."

What Noël Coward thought about anything—really *thought*—is a mystery. He seems on the whole the most underread and undereducated person ever to make a significant mark as a dramatic writer. He very sharply observed the manners of himself and the people he was trying to fit in with—all outside the circle of charm is a blank. In the early *Diaries* (begun with World War II) Coward seems to be cultivating a kind of upper-class voice, perhaps as a result of his association with Dickie and Edwina (Lord and Lady Mountbatten). The *Diaries* are heavy with dropped names. Ingenuously, Coward also tends to note each occasion on which he ate caviar.

Amazingly for a writer, Coward in his *Diaries* shows no interest in characterizing or capturing other people. There is scarcely any quotation of another person's speech and no real description. If we don't already know Dickie, or Gertie (Lawrence), or Tallulah (Bankhead), or Alfred (Lunt) and Lynn (Fontanne), we shall never meet them here. Coward's interest is in people's behavior toward himself; he records that individuals are being "absolutely sweet" or "too tiresome." The only personal passion that emerges is his love for his mother; her death evokes the only statement of religious belief—or rather, the lack of it.

The most interesting parts of both the *Biography* and the *Diaries* exhibit the hard work of theater, the endless search for perfection. Coward had a genius for accuracy. He was a thorough professional. The only time he loses patience with Princess Margaret and her set is when they put on a play, "one of the most fascinating exhibitions of incompetence, conceit and bloody impertinence that I have ever seen in my life." The past also seemed amateurish. Shuddering at the thought of directing the National Theatre's *Love for Love*, he records "I would rather die . . . I simply cannot abide Restoration comedy . . . its obvious bawdy roguishness bores the hell out of me." Coward enjoyed the contemporary. He was interested in and generous to young playwrights, finding John Osborne's *Look Back in Anger* "full of vitality and rich language" and calling Edward Albee's *Who's*

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Afraid of Virginia Woolf "fine, scathing, sublimely acted."

Unlike most dramatists, Coward was himself always a part of the greasepaint world he wrote for. He was offered major roles in his later years; turning down Higgins in *My Fair Lady*, he recommended Rex Harrison. He deeply enjoyed his cabaret appearances, particularly at Las Vegas in 1955. He was a performer. Confronted with anything that threatened his magic, he was hostile. After performing to an unenthusiastic audience at an aircraft factory in 1942, he exclaimed, "I have no real rapport with the 'workers,' in fact I actively detest them en masse. They grumble and strike and behave abominably. . . ." In 1961 Coward rather uncharacteristically wrote a series of petulant articles against the modern English drama; later, he explained he had been "getting awfully sick of this emphasis on the underprivileged and proletariat."

Coward really always shared the instincts and deep prejudices of the lower middle class into which he was born. This partly explains his dislike of the "workers" (messy, uncivilized, overindulged) and his simple love of glitter and glamour, the world of caviar and limousines. Coward, however, knew how to make these obvious tastes seem complicated, august and even mysterious; he created an aura of "style."

Coward's own famed style is, like his wit, sharp, consistent and self-protective. Morley points out that Coward perfected the particular dramatic technique "of having a character say one thing while thinking and meaning something entirely different," and that this was adapted by Pinter. Coward did make a difference to dramatic language in our time.

The characters in Coward's best plays (the comedies) have impossible (because undefinable) desires, and they cover their desires, their rationalizations—and their inadequacies—with quick, aggressive small talk which must always point away from the physical, the material. They flirt heavily, these characters, and they flirt first of all with themselves. Restoration comedy had an earthiness that Coward had to dislike, had to dismiss as vulgar.

Noël Coward covered his own life with flashing performance, and exploited himself so cleverly as to introduce a theatrical dialogue which seemed to contemporaries effortless and surprising and, as Albee said, "very, very true." This comic counterpoint is the result of serious emotional activities and evasions. Coward said of Oscar Wilde, "odd that such brilliant wit should be allied to no humour at all." The same could be said of Coward; the work and the man are all wit and very little humor. As John Osborne said, Coward was "his own invention." Inventing Noël Coward was Coward's most serious work and his biggest production.

Margaret Doody
Novelist and literary critic

Drawn to Art: A Nineteenth-Century American Dream
Diane Korzenik
University Press of New England, $35

My daughter Rebecca, age four, delights in sketching her surroundings. That love of drawing she shares with many children, including the young Cross siblings of mid-19th-century New Hampshire. Yet Rebecca declares no ambitions of an artistic career; her current goals include employment as a playground instructor, highway-line painter and collector of tolls.

The Crosses, however, desired nothing so much as to be a part of the nascent American artistic education and apprecia-

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tion movement. For them, art professor Korzenik feels, the "passion for learning to draw" took on "the intensity of a dream." Here the artistic life histories of Joel Foster Cross, Henry Clay Cross and Emma Cross bring the intensity of everyday experience to Korzenik's scholarly review of the art-education explosion of the 19th century. The lives of these New England farm youngsters intersect with the principal figures of that movement in the same fascinating manner as celebrities surface in E.L. Doctorow's fictional *Ragtime*. The way in which Korzenik weaves the Cross saga into the fabric of the times both strengthens and brightens this elegant tapestry.

Sturdy as this work is, it all hangs by the slim thread of coincidence. Korzenik was already at work on a less personal study of the art-education movement in 1981 when a New Hampshire antique dealer called to offered her five full boxes of memorabilia from one collection: the letters, ledgers and, principally, artworks of the Crosses. Their watercolors, sketches, paintings and engravings—many reproduced in black and white and color here—detail familial talent and devotion to art.

It seems likely that the Cross children's artistic aspirations were whetted not only by the esthetic sensibilities of both parents, but also by the image of the artist at his easel that appeared on trade cards and product labels of the period. The public craving for art and artists was reflected further in the drawing books for children, distributed free of charge as promotional gifts by coffee and tea packagers.

Unquestionably, their art interest was furthered by the son of neighbors, Henry Walker Herrick, a renowned artist, engraver and teacher. Herrick's engraved images adorned the immensely popular *Harper's Weekly* and texts such as John Gadsby Chapman's *The American Drawing-Book*, in which farmer Joseph Cross might well have read "call not your boys idle fellows when you find them drawing in the sand. Give them chalk and pencil. . . . Depend upon it, [they] will plow a straighter furrow, and build a neater and better fence."

To Joseph's dismay, neither of his sons channeled his artistic energies into farming. In 1867, at 21, Joel Foster Cross set off on his own. Within two years he was in Boston working for wood engraver Samuel S. Kilburn. Soon he was followed by his brother Henry. Copying illustrations for engraving was a skill much in demand before the commercialization of photography, and one that Foster and Henry Cross had mastered early in life. Kilburn's shop did a prosperous business and employed such illustrators as Thomas Nast.

Boston was home to many of the era's leading artists, William Morris Hunt among them, many of whom Henry might have met at the newly created Boston Art Club, founded by philanthropist Charles Callahan Perkins. Perkins was also the creative force behind the Boston Museum of Fine Arts and involved in implementing the Massachusetts Drawing Act of 1870, which provided free mechanical-art classes to adults in all communities exceeding 10,000 in population in the state. "Drawing is a practically useful power, because it teaches men to observe and to express," lectured Perkins.

To administer Boston's drawing classes Perkins imported a dynamic young Englishman, Walter Smith, whose influence on American art education was to extend far beyond Boston. Smith's accomplishments pale only by comparison to his exalted mission: "to devise the most comprehensive system of art instruction the world has ever seen in ancient or modern days."

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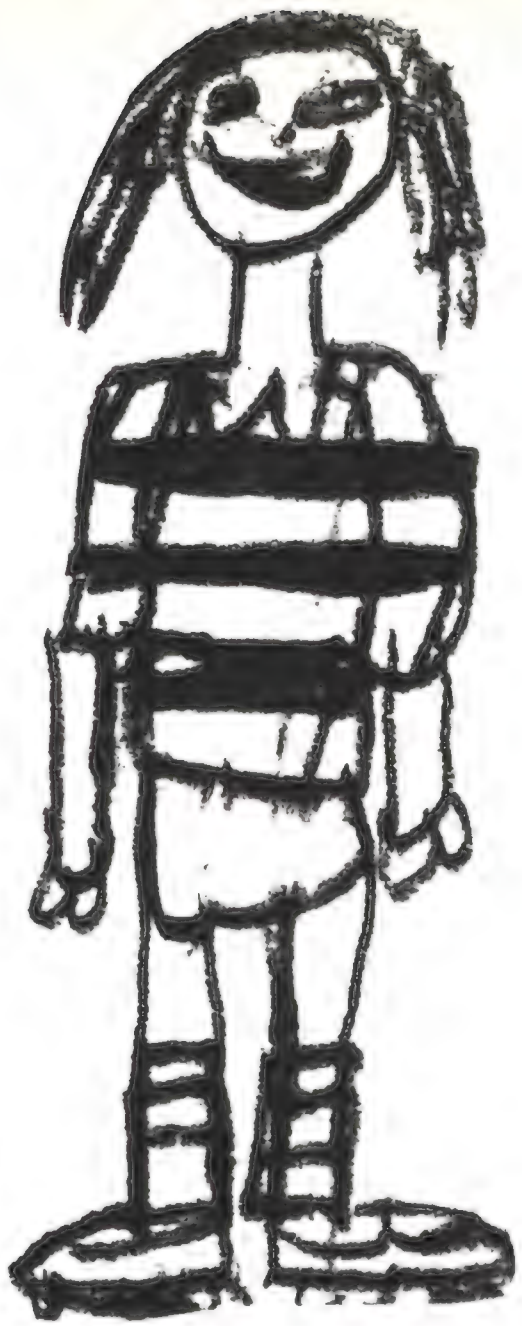

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Smith did create the first academy for training art instructors, the Massachusetts Normal Art School, in 1873. And in tandem with immigrant printer Louis Prang (SMITHSONIAN, December 1977), himself a force in the popularization of art as inventor of the Christmas card (at the suggestion of his agent's wife) and printer of highly successful color lithographs, Smith published his *American Text Books of Art Education*. These books were widely used in adult drawing classes and in schools, including the Manchester, New Hampshire, primary school where homebody Emma Cross taught. Smith's achievements were celebrated at the 1876 gala Centennial Exposition.

Henry Cross continued to prosper as an engraver through the century, overstepping his less ambitious brother to become a partner in Kilburn & Cross. However, photographic advances were obviating engraving, and in 1899 both Cross brothers left the firm, which appears to have dissolved in 1902. Henry and Foster set off in search of California gold and returned to New Hampshire empty-handed.

A long slide into depression and anonymity ended the Cross brothers' artistic careers. Sister Emma's never began, sex and circumstance consigning her to a life as caretaker and librarian. We come away from *Drawn to Art* craving more details of the brothers' fall, but grateful to share their fascinating ride on the art bandwagon of 19th-century America.

Don Lessem

Massachusetts critic and essayist

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Additional reading

Polar bears (p. 40)

Lords of the Arctic by Richard C. Davids, Macmillan, 1982

The ecology of the polar bear (Ursus maritimus) *along the western coast of Hudson Bay* by Iran Stirling, Charles Jonkel, Pauline Smith, Richard Robertson and Dale Cross, Occasional Paper No. 33, Canadian Wildlife Service, 1977

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Alamo (p. 54)

The Fall of the Alamo by Reuben M. Potter, Otterden Press (Hillsdale, New Jersey), 1977

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Old Executive Office Building (p. 84)

The Old Executive Office Building: A Victorian

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Masterpiece, Executive Office of the President, 1984

Executive Office Building, Historical Study No. 3, General Services Administration, 1970

"State, War, Navy Building's Fifty-fifth Anniversary" by Myrta Ethel Gawood, *The Sunday Star,* January 12, 1930

François Boucher (p. 98)

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Les Bronzes Grecs by Claude Rolley, Office du livre (Fribourg, Switzerland), 1983

Smithsonian highlights

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Special March exhibits and events

National Air and Space Museum
Exploring Comet Halley: An International Effort (March 26; 7:30 P.M.) Jürgen Rahe analyzes information just returned from the European Space Agency's Giotto mission.

Cooper-Hewitt Museum (New York)
La Nijinska: A Dancer's Legacy (March 18-July 6) More than 150 objects relating to this influential choreographer.
Playing Cards (March 18-May 25) Their evolution over five centuries.
Toys from the Nuremberg Spielzeugmuseum (March 3-May 11).

National Museum of Natural History
Seven Views of Hopi: Photography of the Hopi People by the Hopis Themselves (March 14-June 1; Rotunda Gallery).

National Museum of American Art
Art in New Mexico, 1900-1945: Paths to Taos and Santa Fe (March 7-June 15) Includes 120 paintings by Andrew Dasburg, Marsden Hartley and others, and 35 Indian and Hispanic decorative works.

Renwick Gallery
Masterpieces of Time: Clocks by Wendell Castle (through May 4) See *Highlights continued.*

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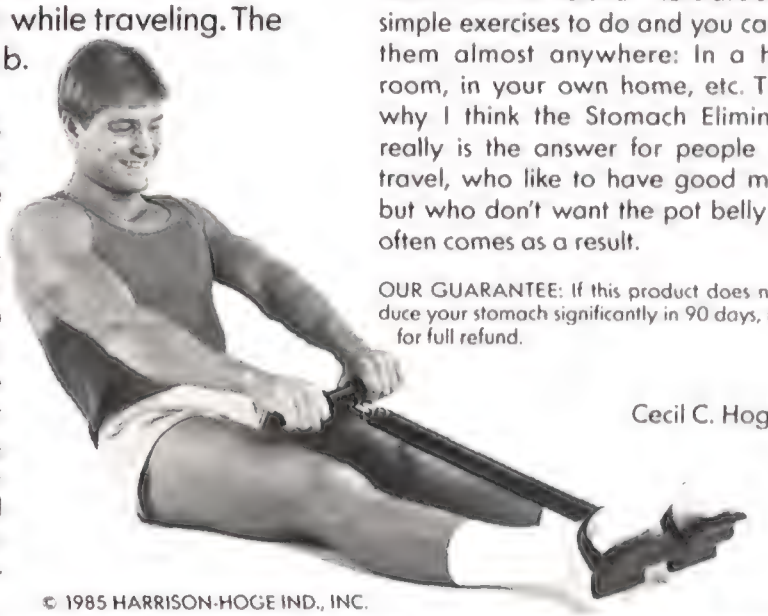

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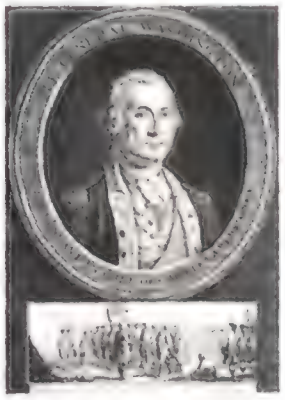

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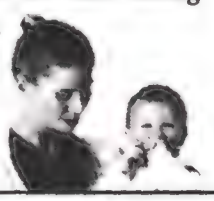

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Freer Gallery of Art
Wonders of Creation, Oddities of Existence: An Exhibition in Celebration of Halley's Comet (March 3-October 1).

Hirshhorn Museum & Sculpture Garden
Directions 1986 (through March 30) New works by eight American artists.

Lecture and Seminar Program

Associates in Tucson will have the opportunity to meet Smithsonian curators and scientists when the program cosponsors a week-long series of events March 17-23. The program includes lectures on African art, quasars and ethnobotany, and seminars on astronomy, folk music and photography. From April 3-7, the program travels to Carbondale, Illinois, with presentations on commercial aviation, Polynesian art and nature photography. Associates in these areas should have received invitations by this time. For further information, write Lecture and Seminar Program, A&I 1190, Smithsonian, Washington, D.C. 20560.

Exhibition catalogs

Catalogs available at this time include:
After the Revolution (cloth, $24.95)
Fire and Ice: A History of Comets in Art (paper, $14.95)
Magnificent Voyagers, The U.S. Exploring Expedition, 1838-1842 (cloth, $35; paper, $17.50)
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Smithsonian on the air

Radio Smithsonian: features on this weekly half-hour series include the culture of Central Africa's Tabwa people and a look at the Frankenstein monster myth.
Smithsonian Galaxy: short radio features explore history, science and art.
Here at the Smithsonian . . .: two-minute TV features present sights, sounds and behind-the-scenes activities.
Smithsonian World: "American Pie," airing March 19 at 8 P.M. on PBS stations, looks at the diversity of our country.

To find out what stations in your area carry these radio and TV programs, write Office of Telecommunications, MAH Room BB40, Washington, D.C. 20560.

Musical Weekend

For information on the 14th Musical Weekend, April 25-27, write Musical Weekend, Room 4124 NMAH, Smithsonian Institution, Washington, D.C. 20560.

Resident Associate events

To become a Resident Associate, or to find out about the many activities presented monthly, or for fee and ticket information, call 357-3030. Here are some March events: *New Vistas in Art: Three on the Scene* (March 4; 8 P.M.) Roundtable discussion with Gracie Mansion, Patterson Sims and Donald Kuspit. *Contemporary Spanish Cinema* (four Tuesday evenings beginning March 18) Film series. *"Home Sweet Home"/Dear Friends* (March 21; 8 P.M.) Old-fashioned parlor concert.

Smithsonian Institution Traveling Exhibition Service

SITES circulates exhibitions to hundreds of cities outside Washington. To sponsor a show in your community, write: SITES, Smithsonian Institution, Washington, D.C. 20560. Here are some March exhibits:
Coral Gables, Florida (March 1-April 13) *New Vistas: American Art Pottery, 1880-1930, from the Cooper-Hewitt Museum*, University of Miami/Lowe Art Museum.
Los Angeles (March 15-June 1) *Ebla to Damascus: Art and Archaeology in Ancient Syria*, Natural History Museum of Los Angeles.
Rockford, Illinois (March 1-March 30) *Know What You See: The Examination and Treatment of Paintings*, Burpee Art Museum.

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Wendell Castle's intriguing clocks

Since 1968, wood craftsman Wendell Castle has been making artistic furniture in his workshop—an old grain mill in upstate New York. Two years ago, he decided to do a series, interpreting one basic object many different ways. He chose eight-foot-high clocks. "I asked myself, 'What's a piece of furniture that makes a strong statement?'" says Castle; "and I thought of the grandfather clock." The 13 works that resulted are now on exhibit at the Renwick Gallery through May 4.

Castle found that the idea of time, and the way various societies throughout history have viewed it, suggested all kinds of themes. Although all the clocks he designed conform to the basic measurements of the grandfather clock, and many chime on the quarter-hour in traditional manner, the similarity ends there. For the housing of each clock raises questions about—and in some cases even denies—the solidity of the age-old face it presents to us.

For the piece entitled *Dr. Caligari*, as an example, Castle was inspired by the avant-garde 1919 film, *The Cabinet of Dr. Caligari*, in which odd events unfold in a surrealistic, time-warp setting of crooked walls and strong light-and-dark contrasts. The clock he designed projects this sense of indeterminacy with its lack of right angles and its stark surfaces that capture shadows.

Other clocks comment on multiple levels of reality. Birds embellish both the base and the crowning member of the tower to the right, yet those at the bottom are rigidly hierarchical, "guarding" the clock in conventional form, while the ones at the top appear to be real birds, resting briefly before moving on. "I was playing here with the saying 'time flies,'" says Castle.

He and his eight assistants crafted the clocks from exotic woods with gold, silver, leather and mother-of-pearl inlays, each one requiring more than 1,000 hours to produce. The entire project took a year and a half.

By the end, Castle had swung toward humor: he entitled one of the last clocks in his series *Jester* (top left). "Most of the clocks were pretty heavy, both literally and figuratively," he laughs today; "and with *Jester* I started to lighten up." There's a lesson there somewhere.

Constance Bond

Skinny body and arms of *Jester* poke fun at the traditional grandfather clock.

Magician's Birthday alludes to Middle Ages, when many thought time was magical.

Dr. Caligari was inspired by 1919 film that threw perception of time into question.

Pyramid and winged god Horus convey solidity of an empire that time conquered.

Tower clock with bird guardians at base hosts transitory winged visitors at top.

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Arizona April 16-24 or April 26-May 4: Cross desert and mountains to see cacti in bloom, meet field researchers.

Arches/Canyonlands May 14-21: Explore Utah's magnificent red-rock land of deserts, canyons, rivers.

New York May 16-19: Enjoy weekend of dining, museum visits, Broadway theater.

The Hopi and Navajo May 17-27: Visit Grand Canyon, Monument Valley, Canyon de Chelly for an in-depth look at Southwest Indian cultures.

Bermuda June 2-8: Reside at Biological Research Station while exploring island's diverse habitats.

Chicago June 4-8: Walking tours to study the city's stunning architectural legacies.

Williamsburg for Families June 25-29: Parents and children 7-14 participate in Colonial activities.

Montreal/Quebec June 28-July 7: Experience France in the New World.

Grand Canyon July 11-20: Raft with expert boatmen through magnificent landscape.

Oregon July 11-28: Fresh sea air, mountain vistas highlight this outdoor adventure.

Waterton-Glacier International Peace Park July 11-22 or July 25-August 5: Experienced hikers tour backcountry with guides.

The Black Hills July 26-August 2: Explore Indian culture and cowboy lore in the splendor of South Dakota's Badlands.

Green River Journey July 30-August 8 or August 28-September 7: Experience the thrill of white water, Utah's canyonlands.

Middle Fork August 5-13: An unforgettable river trip on Idaho's Salmon River.

Colorado Mining and Railroads August 8-16: Relive the Gold Rush days when steam locomotion opened the West.

Crow Canyon Archaeology August 24-31: Join archaeologists near Mesa Verde, Colorado, to participate in a dig.

Alaska's Inside Passage September 20-30: Cruise from Ketchikan to Seattle; see killer whales and turquoise water of Glacier Bay.

Washington "Anytime" Weekend: A perfect getaway. Must reserve ten days ahead. Cherry Blossom Festival April 6-12; Fourth Annual Craft Show April 18-20.

Foreign Study Tours

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Shadows of the Past—Chateaus, Caves and Villages of the Dordogne: April 5-19 or April 19-May 3: Explore this fascinating region of France. Includes four days in Paris.

Portugal April 9-23: Sample Lisbon's diverse charms and those of the countryside.

Istanbul & Beyond May 1-17: Six days in the city, followed by regional travel.

Roundabout Italy May 6-23: Relaxed sailing from Venice to Genoa.

Springtime in Sicily May 9-22: Delight in an island harboring monuments from classical Greece to Baroque periods.

London and the English Countryside May 11-25: Exciting city program, travel to country homes, gardens and historic sites.

Spring in Norway May 19-June 1: See International Festival performances by musicians in Bergen. Then on to Oslo.

Danube Journey May 20-June 7: Explore castles, cathedrals and museums from Bucharest to Vienna.

Florence Seminar May 30-June 15: Stay in a villa and study the Renaissance.

Paris to Beijing by Train May 30-July 4: Join adventurous fellow Associates for an experience of a lifetime.

Irish Walk June 2-14 or September 5-17: Take day hikes through a variety of settings in the Ring of Kerry and Connemara.

Wild Highlands of Scotland June 5-23: Enjoy the outdoors while studying about this area's cultural and natural history.

Europe by Train June 11-30 or August 13-September 1: Luxury and splendid vistas on *Orient Express*, Switzerland's *Glacier Express*, France's swift *TGV.*

Island World of Britain June 15-July 3: A circumnavigation to explore ancient ruins, great houses and remote hamlets.

Perspectives on Mediterranean Civilization June 22-July 6: Gain new insights into history, art, architecture in Italy, France, Spain, Morocco and Portugal.

Countryside Programs From June to September: Explore scenic and historic areas in Switzerland, Austria, Italy or England.

Coming in August: Volga Cruise.

Write National Associates, Capital Gallery 455, Smithsonian Institution, Washington, DC 20560 or call (202) 287-3362 for tour brochures

in Washington

Smithsonian Seminars at Appalachian State University

June 25-28, 1986

Smithsonian seminars will travel south this summer for a series of four-day programs at Appalachian State University. Located in the beautiful Blue Ridge Mountains of northwestern North Carolina, the University enjoys a delightful summer climate. The seminars are especially designed to take full advantage of the natural and cultural heritage of the Southern Appalachian region. Expand your educational horizons as you join fellow Associates for stimulating seminars on American art, creative writing and fossil identification.

The New Eden: A Century of American Art

Art historian William Kloss shares new perspectives on 19th-century American art as he traces the development of painting from the rapturous works of the Hudson River School through the Luminists to regional landscape art as esthetic expressions of American optimism. Visit the Hickory Museum of Art and the Reynolda House Museum of American Art to view splendid American painting from this period.

The Art and Craft of Creative Writing

Study the successful techniques of creative writing with Edwards Park, author of SMITHSONIAN's monthly column, "Around the Mall and Beyond." Learn how to establish a novel point of view and discover how to appeal to the senses through artfully chosen words and images. Explore North Carolina's literary heritage with visits to Connemara (Carl Sandburg's home in historic Flat Rock) and the Thomas Wolfe Memorial in Asheville.

Identifying Fossils

Appalachian State University is surrounded by mountains which some scientists believe to be among the world's oldest rock formations. Explore this region with paleontologist John Hanley and University faculty members during lectures, hands-on workshops with fossil specimens and a field trip to local areas of geological interest where you will see striking fossil and structural evidence of the crucial events that shaped our continent.

or (202) 357-1350 for seminar brochures.

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CHARCOAL MELLOWED DROP BY DROP

By James Trefil

A few words on behalf of the Brontosaurus

Some of the best times of my childhood were spent staring up at the huge, brownish bones of reconstructed dinosaur skeletons. Because I grew up in Chicago, my memories center around a *Brontosaurus* in the Field Museum of Natural History. Not only did it have a skeleton, there were murals showing other large, blimp-shaped dinosaurs with long necks munching on swamp grass while pterodactyls flitted overhead. The size of the display, the old bones and the mysterious hush of the surroundings made a lasting impression.

According to a sign, the grandiloquent name *Brontosaurus* translated as "Thunder Lizard." I imagined this creature calling to its mate with a noise somewhere between the trumpet of a bull elephant and the roar of a locomotive. Later I learned the animal was so big it needed an extra nerve ganglion—something like an auxiliary brain—just to send messages to its hindquarters so they would do its bidding.

I mention all this because of something that happened the other day. I was settling down with my daughters for a pleasant bedtime read in a new dinosaur book. It had a horrific picture on its cover of a *Tyrannosaurus rex* fighting a *Triceratops* and I was expecting a pleasant romp down memory lane, while dispensing some authoritative fatherly information to the girls. But imagine my surprise and shock when I opened the book and I found the following dastardly assertion: "There is no such thing as a *Brontosaurus*."

I kept outwardly calm. My first concern, naturally, was for my daughters. Before they could panic, I quickly pointed out that Daddy had actually seen the skeleton of a *Brontosaurus*. "But Daddy," they chorused, "the book says there's no such thing." There was nothing for it but to find another book to bolster my side and stop this base canard from taking hold in their impressionable young minds. With a little luck I found another author who tactfully explained "the dinosaur that used to be called a *Brontosaurus* is now called an *Apatosaurus*."

I knew that in the late 19th century, during a period paleontologists refer to nostalgically as the "Dinosaur Wars," rival scientists were racing to dig up and catalog new fossils. The first person to find a skeleton got to name it. *Apatosaurus*, I was pleased to find, literally means "Unreal Lizard," a most insubstantial name. But it was found in Wyoming by Othniel Charles Marsh of Yale in 1877, two years before a similar but much larger skeleton was unearthed. Actually, Marsh's expedition discovered both the *Apatosaurus* and the *Brontosaurus*, but in the heat of battle he failed to recognize they were the same animal. This is why scientists want to change from good old *Brontosaurus*, a familiar name and by far the most popular of the dinosaurs, to *Apatosaurus*, which will simply confuse everybody.

It wasn't only the switch to "Unreal Lizard" that bothered me, though. The whole thing seems to be part of a diabolical plot. Dinosaurs used to have a kind of status, if only because of their size. They might never have won when they came up against cavemen in Grade B movies, but, by God, they were worthy opponents. What do you have now? A wimp like Fred Flintstone eating "*Brontosaurus* ribs," presumably bought at the local supermarket. The Smithsonian itself sells cuddly little dinosaur dolls to unsuspecting tots, and the most fearsome dinosaur around is Puff, the Magic Dragon! Even in the area of serious science, we are now told that dinosaurs may have been warm-blooded mammals. Not only has my *Brontosaurus* been robbed of his name, but his reputation as well.

The injustice of the whole thing began to eat away at me. For thousands of people, *Brontosaurus* is a sort of Everyman among dinosaurs. I imagined him ambling through the swamps in a king-size, rumpled suit, trying to find enough grass to keep body and soul together, and at the same time avoid the attention of *Tyrannosaurus rex* and the IRS. Altogether, an ordinary, unpretentious kind of fellow.

Did he ever get to rassle with King Kong, or threaten a beautiful maiden scantily clad in animal skins? You bet your life he didn't. When opportunities like that came up, it was always that three-letter man, *Tyrannosaurus rex*, who got the nod, or maybe that rising star *Triceratops*, with the horns on his head. The best *Brontosaurus* could expect was a bit part now and then.

Like most of us, *Brontosaurus* no doubt considered it a day well spent when he returned to his modest nest with a full stomach and no nasty letters from his credit-card company. Then, if one can put confidence in current scientific theory, disaster struck. One day, perhaps while our hero was browsing contentedly on a particularly succulent bunch of cattails, a large asteroid flashed out of the sky. It was the death knell for the dinosaur, famous and obscure alike, and *Brontosaurus* went out with the rest.

So, after eons and eons of living a virtuous life in primeval swamps, and some 65 million years buried under the arid plains of the West, what is *Brontosaurus*' reward? Some smart-aleck writer comes along and says he never even existed. Without even an "Oops!" or a "Sorry."

And all I can say is I'm not going to take this lying down. Maybe I have to live with the breakup of AT&T and a nine-digit zip code, and the outrageous pretense that Peking is really Beijing. But I don't have to swallow this new attack on the established order of things. If God had wanted an *Apatosaurus*, He would have labeled things that way in the first place.

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